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W E E K L Y R E P O R T S

Of The Division Of
WESTERN IRRIGATION AGRICULTURE
Bureau of Plant Industry
United States Department of Agriculture

(Not for publication without the prior consent of this division.)

Vol. XXXIX

January 2 and 9, 1937

No. 1

Belle Fourche

Report for the month of December

The mean temperature for December was 23 as compared with the 28-year mean of 20, with an absolute maximum of 61 on December 23 and an absolute minimum of -15 on December 15. Sub-zero temperatures occurred on four days, but in general the weather was unusually warm from December 12 to 24. The wind movement during the month was not excessive, and there was no appreciable soil-blowing. The total precipitation for December was .11 of an inch as compared with a 28-year mean of .46 of an inch. The annual precipitation for 1936 was 10.56 which is 5.64 inches below normal, while the precipitation from April 1 to October 1 was 6.17 inches in comparison with a former seasonal mean of 12.31 inches.

Approximately 20 W.P.A. workers were employed in cleaning the irrigated orchard, windbreak plantings and irrigation ditches.

The feeder lambs were weighed December 20. The average daily gain for all lots for the 28 days was .325 per lamb. The highest gains were made in Lots 10 and 11, Lot 10 being fed shelled corn, alfalfa and beet pulp, and Lot 11 being fed shelled corn, cottonseed cake, alfalfa and beet pulp. The smallest gains were made in Lots 5 and 6, Lot 5 being fed shelled corn and cane and Lot 6 being fed shelled corn and wheatgrass. The lambs should be ready for market the first week in February.

Beyer Aune

Newlands

The mean maximum temperature for the two-week period ending January 9 was 26.1 with an absolute maximum of 42 on December 27; the mean minimum temperature was 11.9 with an absolute minimum of -19 on January 8 and 9. The mean wind velocity was 2.35 miles per hour. There was .77 of an inch precipitation.

The cold weather has made it necessary to bring the W.P.A. project work to a close. There yet remains several hundred feet of trenches to be dug to carry water pipes to additional land and land prepared for shrubbery.

Little work has been done in the fields. The station staff has been employed cleaning buildings, repairing equipment, and keeping the water system open.

After some 10 years of dairy work with little trouble arising from calf ailments, an epidemic of sick calves has developed. Seven or eight calves have

Newlands (cont'd)

died within the past two months. Dr. Records and Dr. Vawter of the State Station staff have attributed the trouble to a contagious infection. This organism infects the navel cord at the time of birth. Measures are now being taken to counteract the infection. The extremely cold weather has added to the difficulties.

E. W. Knight.

Scotts Bluff

The mean maximum temperature for the week ending January 2 was 29 with an absolute maximum of 42 on January 27; the mean minimum was 10, with an absolute minimum of 0 on January 2. The mean wind movement was 9.3 miles per hour. There was .08 inch precipitation.

In addition to the regular work of caring for the livestock, station activities consisted of sorting certified seed and table stock potatoes. A car of table potatoes was loaded during the week. The potatoes brought \$1.90 per cwt., 85% grade. The culls brought \$1.10 per cwt. A car of certified seed potatoes (94% grade) sold for \$2.90 per cwt. The second grade certified seed potatoes sold for \$1.90 per cwt. Potato shipments from western Nebraska have been heavy during the week. The price during the early part of the week tended upward but during the later part leveled off and began to sag a little in the face of heavy loadings.

The 27-year average (1910-1936) precipitation at the station for the growing season has been 11.37 inches. During 1936 it was 5.87 inches or 5½ inches less than the average. The total precipitation for the year was 8.32 inches as compared to the 27-year average of 13.89 inches. The last frost in the spring occurred May 11 and the first one in the fall September 27, leaving a frost free period of 139 days for 1936 as compared to a 27-year average of 134 days.

During 1936 adverse climatic conditions seriously affected potato and grain crops. Owing to the lack of early spring precipitation, grain crops suffered irreparable damage before irrigation water was available. Temperatures from May to September, inclusive, were considerably above the average. Extremely high temperatures during June and July burned emerging potato shoots, resulting in poor stands and later poor yields. Alfalfa and sugar beet crops, where sufficient irrigation water was available, were very successful. A mild fall permitted the harvesting in some instances of a fourth cutting of alfalfa.

Final yields of sugar beets for 1936 have been compiled. The maximum yield of 20.9 tons per acre was harvested from alfalfa rotation 61 and the minimum yield of 8 tons per acre was harvested from continuously crop plat rotation 2. The mean yield for all rotations was at the rate of 14.1 tons per acre. Even in view of the fact that spring weather conditions were unfavorable for sugar beets this mean yield compares favorably with those recorded for the past several years.

The mean maximum temperature for the week ending January 9 was 13 with an absolute maximum of 35 on January 5; the mean minimum was -6 with

Scotts Bluff (cont'd)

an absolute minimum of -20 on January 8. The average daily wind movement was 11.0 miles an hour. There was .07 of an inch precipitation. Slight dust storms during the early part of the week covered what snow there was on the ground with a fine layer of dust. In the opinion of A. E. Anderson, federal and state crop statistician, snowfall so far has been of little value to crops.

Station activities during the week included sorting and hauling potatoes, hauling hay and straw, and miscellaneous repair work. About 800 pounds of white beans were sold.

Negotiations are well under way to establish a canning factory in Scottsbluff. Approximately three-fourths of the amount of money necessary has been subscribed.

Lionel Harris has been on leave since January 5 and after attending a meeting of the Great Western Sugar Company in Denver January 12-14, he will return to the station.

Lionel Harris.

Umatilla

Report for the month of December

The mean temperature for the month of December was 38 with an absolute maximum of 66 and an absolute minimum of 19. The mean wind movement was 3.2 miles per hour with the precipitation amounting to .69 of an inch. The 25-year mean temperature for December has been 32.9, wind movement 2.4 miles per hour, and precipitation 1.03 inches. The precipitation from September 1 to December 31, 1936, was .92 of an inch as compared with the 25-year mean of 3.34 inches.

Field work was possible during practically the entire month. Gravel donated by the State Highway Commission was used for a top dressing of 3 inches on the interior station roads. A section of ditch 175 feet long in front of the residences and another of 70 feet in the pasture were concrete lined. Areas south and west of the station were seeded to rye as was the north 20 to retard soil-blowing. None of the rye seeded in October has as yet emerged due to inadequate soil moisture.

The last of the 1936 crop of turkeys were killed on December 12. Average weights of turkeys:

<u>Lot No.</u>	<u>Mash</u> Protein %	<u>Scratch</u>	<u>Weights</u>	
			<u>Toms</u>	<u>Hens</u>
1	24%	Wheat Corn Barley	28.4	16.4
3	21%	"	28.1	16.1
5	0	Scratch and Milk	28.3	16.1
7	18%	Wheat Corn Barley	27.1	15.8

Umatilla (cont'd)

H. K. Dean attended the Oregon Agricultural Staff Conference at Corvallis during the week of December 14.

H. K. Dean

Yuma

The mean maximum temperature for the two-week period ending January 2 was 67 with an absolute maximum of 78 on January 2; the mean minimum temperature was 41.9 with an absolute minimum of 29. The precipitation was .08 of an inch.

For the year 1936 the temperatures were about two degrees above normal, every month being above the average. The total rainfall for the year was 2.27 inches. No precipitation was recorded during the months of April, May, June and September and only .01 of an inch in October. The two light rains on December 28 and 29 did not interfere with the harvesting of fall and winter crops. Cotton picking and ginning has continued with the end of the season near at hand. The five operating gins report a total of 11,000 bales for the project as of December 31.

Lettuce shipments are being made at the rate of about fifty cars per day. Grapefruit shipments are two to three cars per week with about one-third of the crop moved. Alfalfa hay and seed sales are slow as most of the crop has been moved. The better grades of hay are selling at \$14.00 per ton on the ranches. Alfalfa straw is quoted at \$7.00 per ton baled. Alfalfa seed is selling around .19 per pound.

The U.S.G.S. report on the Colorado River for December shows the discharge into Lake Mead to be 341,000 acre feet as compared with 293,000 acre feet for December 1935. The flow below Boulder Dam for December 1936 was 304,000 acre feet, leaving an estimated storage of 9,482,000 acre feet.

Station work for the past two weeks included the cutting of stalks and plowing cotton plots, picking and ginning cotton, repairing ditches, pruning date palms, general irrigating and hoeing.

Mr. W. F. Wight of the Division of Fruit and Vegetable Crops and Diseases stationed at Palo Alto, California, was a station visitor December 23.

The yields of short staple cotton in the Regional Variety test for 1936 are as follows:

<u>Variety</u>	<u>Yield in lbs. of seed cotton per acre.</u>
Acala Q-6	2720
Acala, Shafter	2751
Acala, N-28-5	2621
Stoneville	2777
Missdel	2460
Mebane	2014
Lonestar	1816

E. G. Noble

Prosser

During the three-week period ending January 2 the mean maximum temperature was 44.8 with an absolute maximum of 62; the mean minimum was 29.4 with an absolute of 8°. The total precipitation, the majority of which was snow, was 0.99 of an inch. The weather was unusually mild up to the last week of December, and many farmers in the lower Yakima Valley were plowing.

Preliminary work for the installation of furnace equipment purchased for the office building is in progress.

The station's 1936 potato crop has been sold. The potatoes planted about the first of July were of a better quality than those planted June 1. However, wireworm damage reduced the quality of the crop.

The Utah-Idaho Sugar Company has been successful in contracting sugar beet acreage in the Yakima for 1937. Approximately 6,000 acres have already been contracted as compared with 900 acres the past season. The construction of the new sugar factory at Toppenish is progressing according to schedule.

C. A. Larson

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Vol. XXXIX

January, 1937

No. 2

Huntley

During the two-week period ending January 16 the absolute maximum temperature was 39 and the absolute minimum -42°. There was 0.14 inch of precipitation in the form of snow. The most severe weather conditions of the winter occurred during this period, when there were several days of sub-zero temperatures accompanied by light snowfall.

Range lambs on feed in the valley during the winter are being moved to market at prices that net the feeder about \$9.00 per cwt. Most of these lambs cost from \$6.25 to \$6.50 per cwt. in the feed lots last fall. Considering the high cost of feed, the margin between cost and selling price was not sufficient to allow for much profit in the feeding operation, although a fair market price for feeds is realized.

At a recent meeting of Agricultural Extension Workers in Billings the State Entomologist, Dr. A. L. Strand, reported a recent survey indicated that under normal conditions extensive crop injury from grasshoppers might be expected during the coming season over many sections of the State. Also, in some areas it is expected that Mormon Crickets may occur in sufficient numbers to constitute a serious menace.

Dan Hansen.

Newlands

The mean maximum temperature for the two-week period ending January 23 was 24.6; with a maximum temperature of 40 on January 18; the mean minimum temperature was -2.2, with a minimum temperature of -19 on January 21. The mean temperature was 13.3°. The mean wind velocity was 2.76 miles per hour. There was .24 inch precipitation during the period, which included 4 inches of snow.

Station work has been at a standstill due to the prolonged cold weather. To date the winter has been the third coldest in the history of the station. The frost line is gradually extending lower into the ground and considerable time is being spent in thawing pipes.

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January, 1937

Newlands (Cont'd)

The interiors of several station buildings, including the office and laboratory, have been painted. Scraping paint and a general cleaning of the buildings has been undertaken when possible, and some repairing of farm machinery is being made. Laboratory work has been temporarily retarded because of the painting.

The sheep experiment has been completed, the animals being shipped to Reno for disposal. The greater portion of the sheep were disposed of at top price, with a small percentage having wool blindness.

E. W. Knight.

Prosser

Weather conditions for the two-week period ending January 16 were as follows:

Maximum 43°	Mean Maximum 23.4°
Minimum -7°	Mean Minimum 6.0°

There was .25 inch precipitation, which fell in the form of snow. The mean hourly wind velocity was 3.97 miles. The depth of snow on the ground January 16 was 3.5 inches. A chinook wind blew for a few hours on January 5 and took the snow cover off the alfalfa fields. This wind was followed by sub-zero temperatures, which may have injured the alfalfa stands.

Work for the week included routine office work.

Mercer and Hill Sheep Co. brought 2,400 ewes to the station January 14 and are feeding them long hay on field E-1. Other fields on the station have been fenced in order to facilitate the open field feeding project.

Top prices for farm commodities in the Yakima Valley are as follows:

No. 1 hay in the stack, \$10.00 per ton; U. S. No. 1 potatoes (sacks furnished), \$40.00 per ton; U. S. No. 2 potatoes (sacks furnished), \$30.00 per ton; combination grade potatoes (sacks furnished), \$32.00 per ton; soft white wheat, \$1.05 per bushel; barley and oats, \$35.00 per ton; hops, f.o.b. car (baled), \$.38 per pound; eggs, \$.24 per dozen and butterfat, \$.34 per pound.

C. A. Larson.

Scotts Bluff

The mean maximum temperature for the week ending January 16 was 27, with a maximum on January 14 of 35; the mean minimum was 0, with a minimum on January 15 of -8°. The mean daily wind movement was 5.9 miles an hour. There was no precipitation.

Scotts Bluff (Cont'd)

Stations activities included sorting and loading potatoes.

The general agricultural meetings of the Great Western Sugar Co., held during the week in Denver, were attended by Lionel Harris, S. B. Nuckols and Leslie Bowen; each addressed the gathering regarding his work.

It is estimated that there have already been shipped from this section 2,600 carloads of potatoes. This is about one-half of the crop available for carload shipments.

The number of lambs on feed in the South Platte Valley January 1 was about 5% less than the number on feed at the same time last year. There are approximately 315,000 lambs on feed now, compared with 445,000 last year. Up to December 31, 1,182 carloads of lambs had been shipped into the valley, as compared with 1,694 during the entire season last year. Since January 1 the valley has marketed 59 carloads.

Lionel Harris.

The mean maximum temperature for the week ending January 23 was 19, with a maximum on January 17 of 35; the mean minimum was -5, with a minimum on January 21 of -22°. The mean daily wind movement was 9.6 miles an hour. There was .06 inch precipitation.

Cold weather during the week has prevented outside station work except the routine of caring for the livestock. A careful sorting of the seed potatoes on hand at the station is being made to preserve them and prevent contamination of the sound tubers. The price, to growers, of table potatoes has advanced from \$2.20 to \$2.30 a cwt. Car loadings have been light during the week owing to the cold weather.

The Otoc Food Products Co., of Nebraska City, Nebr., will begin construction soon on a canning factory for the North Platte Valley. Before the company would build here it requested that \$25,000 in preferred stock be sold in the valley as a gesture of confidence in the enterprise. A drive to sell locally \$25,000 worth of preferred stock in the company has been in progress for a month. The goal was reached during the week, assuring erection of the factory. The site for the factory has not yet been selected. The machinery for the plant, consisting of modern canning equipment, has already been purchased.

Despite a poor start in the late fall and early winter, conditions now point to a greater supply of water in the North Platte Valley watershed this year than last, according to a report made by F. L. Distordick, Associate Meteorologist with the U. S. Weather Bureau at Cheyenne. The snow is well packed in the Platte watershed.

Scotts Bluff (Cont'd)

S. K. Warrick, of Scotts Bluff, was reelected President of the Nebraska Nonstock Cooperative Beet Growers' Association at a meeting this week.

Lionel Harris.

Yuma

The maximum temperature for the two-week period ending January 16 was 65.0, mean maximum, 56.6, minimum, 28.0 and mean minimum 32.3°. There was .19 inch precipitation. There were 10 clear days, 3 partly cloudy days and 1 cloudy day.

Freezing temperatures have been recorded in all agricultural sections of Southern California during the past ten days. Damage in the Imperial Valley is reported to be as high as \$2,000,000. Tomatoes, citrus, squash, cantaloupes and lettuce were damaged. Temperatures in the Yuma Valley were reported to be as low as 19°. A slight wind movement in the Bard section kept temperatures above the danger point for citrus fruits.

Lettuce prices have advanced sharply from \$1.10 per crate to a maximum of \$2.35, following the cold weather. The total shipment of lettuce from the Yuma Project to date is 1,062 cars. Other shipments for the fall and winter season have included 106 cars of grapefruit, 19 cars of cabbage, 8 cars of carrots and 29 cars of mixed vegetables.

Cotton fields are being cleaned up rapidly. Ginnings for the past week totaled 490 bales. The total production for the season, to date, is 11,485 bales. One of the cooperative Pima cotton growers in the Bard district sold his cotton in Phoenix, Ariz. for 32.5 cents per pound. His average production on twenty acres was 446 pounds net lint per acre.

Station work performed during the two-week period included the picking and ginning of cotton; disking and plowing cotton plats; pruning date palms; general irrigating and hoeing.

Mr. T. P. Cassidy of the Bureau of Entomology, in charge of Cotton Insects Investigations with offices in Tucson, Ariz., visited the station January 12. Samples of bolls and burrs were collected from all of the cotton varieties in the regional variety test.

E. G. Noble.

M I S C E L L A N E O U S

Mr. Scofield will leave Washington February 7 to go to Riverside, Calif., where he will be for the next several weeks. Since September he has been at work almost continuously, assembling data concerning salinity conditions

Miscellaneous (Cont'd)

in the Rio Grande Basin above Fort Quitman, Texas. This report has been completed. It contains information as to the quality of water samples obtained from some 1,200 stations within the drainage basin and includes the results of approximately 12,000 analyses. This report is a contribution to a more general report on the hydrology and agriculture of this basin, which is in preparation under the auspices of the National Resources Committee, as the product of the Rio Grande Joint Investigation.

Miss Loretta Schmidt has been transferred from the Administrative Office of the Bureau to fill the vacancy created by the resignation of Mr. J. C. Robinson, effective January 12.

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 January, 1937

 No. 3

Belle Fourche

Report for January

During January there were 26 days when the minimum temperature was below zero, the greatest number of sub-zero days in any month on record. The previous record of 24 days occurred in February, 1936. Sub-zero temperatures have been recorded every day during the 31-day period ending February 3, with the exception of January 10, when the minimum temperature was 2° above zero. The absolute minimum temperature was 22° below zero on the mornings of the 9th and 31st. The maximum temperature was below zero on 8 days -- equalled only in January, 1909 and 1929, and exceeded only by the all-time record of 12 days in February, 1936. The absolute maximum temperature was 35° on January 3, the only day of the month on which the temperature was above freezing.

The work for the month consisted of caring for the livestock, putting up ice and repairing machinery.

On Saturday, January 30, the tenth Annual Lamb Feeder's Day was held. The day was cold and disagreeable but some 100 attended and much interest was shown in the results. The lambs will be on the Sioux City market on February 10.

Visitors for the month were Director J. W. Wilson and I. B. Johnson, State College, Brookings, South Dakota; C. H. Hays, Bureau of Animal Industry, Pierre, South Dakota; M. J. Allen, Armour & Co., Sioux City, Iowa and A. L. Baker, U. S. Range Livestock Station, Miles City, Montana.

Beyer Aune.

Huntley

During the two-week period ending January 30 the absolute maximum temperature was 26 and the absolute minimum -26°. There was 0.18 inch precipitation which fell in the form of snow.

The month of January was the coldest on record since 1916 at this station. The maximum temperature during the month was 39 and the minimum -42°. There was .3 inch precipitation. Sub-zero temperatures occurred on

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January, 1937

Huntley (Cont'd)

25 days and there were 5 days on which the maximum temperature was below zero.

Messrs. Hansen and Seamans were in Bozeman during the week ending January 23 attending meetings of Montana County Agricultural Agents and in conference with officials of the Montana Experiment Station regarding cooperative work.

Station activities during the period included hauling of coal and ice and the routine work of caring for livestock.

Dan Hansen.

Prosser

During the two-week period ending January 30 the maximum temperature was 40, the minimum -9, mean maximum 22.9 and mean minimum 7.4°. The greatest daily range was 36°. There was .63 inch precipitation which fell in the form of snow. The mean hourly wind movement was 4.12 miles per hour. There are 7.2 inches of snow on the ground. The heavy fall of fine snow and high wind movement has contributed to the drifting of the snow to the extent that the majority of the country roads are blocked with drifts in the Valley, although the main highways have been kept open with snow plows. The drifting of snow in the Valley is worse than it has been for many years. Temperatures continue to be below normal. Snow in the Snoqualamie Pass of the Cascades measured 76 inches in depth at the end of the week.

On January 21 the Gibson Packing Co. moved in 125 head of calves to be fed at the station during the remainder of the winter. These calves are being fed long alfalfa hay in the feed lots.

Agricultural meetings held with the view to aiding new settlers in the irrigation districts, were in session at Prosser January 26; Sunnyside, January 27 and Ellensburg, January 28. These meetings were well attended and much interest was shown; however, the new settlers were far in the minority. Subjects discussed were irrigation practises, crop rotations, saline soils and soil fertility.

The market for farm produce during the two-week period has been strong and has shown a tendency to increase on many items. Top price for No. 1 alfalfa hay is now \$11.00 per ton in the stack; U. S. No. 1 potatoes and sacks, f.o.b., are now \$52.00 per ton; onions, 2" and up in diameter, and sacks are \$20.00 per ton; the price of butterfat remains at \$0.34 per pound.

C. A. Larson.

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January, 1937

Scotts Bluff

The mean maximum temperature for the week ending January 30 was 25, with a maximum on January 28 of 38; the average minimum was 0, with a minimum on January 25 of -10° . The daily wind movement averaged 8.1 miles per hour. There was no precipitation.

Very cold weather prevailed during the week, hindering in a large measure, the outside station activities. This has been the second coldest January since 1911. The average minimum temperature for January, 1930 was -7° , compared with -2° this year. The mean maximum temperature for January, 1937, however, was the same as for 1930 -- 21° . This year during January the minimum temperature was zero, or lower, for twenty of the thirty-one days. The absolute minimum for the month was -22° . This prolonged cold weather caused the temperature in the potato cellar to drop to the danger point and it has been necessary during the past few days to heat the cellar slightly.

The precipitation for January, 1937 was .21 inch compared with a 27-year (1910-1936) average of .14 inch.

Chancellor E. A. Burnett of the University of Nebraska was in Scotts Bluff Monday and Tuesday attending an Educational Tour by the University. The Chancellor in a speech before the Associated Chambers of Commerce said, "The Scotts Bluff Experiment Station, established by the University nearly thirty years ago, northeast of Mitchell, has done more regarding the land use in this valley than any other place." An achievement of the station, regarding experimental work with vegetable crops, was referred to by the Chancellor, in a discussion of the canning enterprise which is being inaugurated in the valley by the Otoe Food Products Co.

Chancellor E. A. Burnett was a visitor at the station January 26.

An all-time record for the number of turkeys shipped in a single season was set by the North Platte Valley Poultry Marketing Association this week when final consignments of two carloads brought the total to twenty-six cars, or approximately 41,600 birds.

Lionel Harris.

Umatilla

Report for January

With but one exception the mean temperature of 14° for January was the lowest on record. In January, 1930 the mean temperature was 13.1° . The maximum temperature was 49, mean maximum 25, minimum -15 and mean minimum 3° . There were 1.12 inches precipitation -- slightly below normal -- which fell in the form of snow and all was on the ground the end of the month. The 25-year mean precipitation, September 1 to January 31, is 4.50 inches; while for the 1936-37 period, it has been 2.04 inches. Reports from the upper water shed are that the snow fall is just about average but that it has drifted more than usual.

WEEKLY REPORTSJanuary, 1937Umatilla (Cont'd)

No field work was possible during the month. Station activities consisted of summarizing data and writing detailed reports.

H. K. Dean.

Yuma

The absolute maximum temperature for the two-week period ending January 30 was 67.0, mean maximum 56.4, absolute minimum 17.0 and mean minimum 29.8°. There were 11 clear days, 2 partly cloudy and 1 cloudy. Precipitation, trace.

The past two weeks have been the coldest period in the station's records. A minimum of 16.0 was recorded in 1913, but was of short duration. On the night of January 23 and the morning of the 24th the temperature was below freezing for twelve hours and below 20 for six hours, with a minimum of 17°. These below normal temperatures resulted from a general storm over the west coast states and included Nevada and Arizona. Avocado and citrus fruit damage has been reported to be about 50 percent in California; grapefruit losses in the Coachella and Imperial Valleys will probably be at least 80 percent of the fruit although tree damage will be slight. The minimum temperature reported from the Imperial Valley was 12.5°.

Although a minimum of 19.0° was reported from the Yuma Mesa District of the project, it is expected that the grapefruit losses will be very light. Due to the reported loss of fruit in the Imperial and Salt River Valleys, grapefruit prices for the remainder of the season will be substantially higher.

Cold weather damage occurred to the cantaloupe, lettuce and winter pea crops in the Imperial, Yuma and Salt River Valleys. Lettuce prices have advanced from \$1.25 to \$4.00 per crate.

Station work has included the picking and ginning of cotton; cutting stalks and plowing old cotton plats; repairing pump and pipe lines; hoeing nursery plats; pruning date palms and umbrella trees; general irrigating and cultivating.

E. G. Noble.

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February, 1937

No. 4

Huntley

During the two-week period ending February 13 the absolute maximum temperature was 51° and the absolute minimum -33° . There was 0.21 inch precipitation, which fell in the form of snow.

During the first week of February the weather continued cold, with temperatures below zero each day. A break occurred during the past week, a thaw setting in that removed most of the snow from the fields.

The severe winter conditions, following a season of short feed supplies, has resulted in a sharp advance in the prices of feeds. The local supply of hay is low and hay brought in from neighboring States is selling at \$17 to \$20 per ton. Feed grains are selling at \$2.00 per cwt. The price of beans has advanced to a higher point than at any time in the past ten years and Great Northerns grading 98 are quoted at \$6.85 per cwt.

Negotiations are under way to effect a beet contract for the coming season between representatives of growers and the Sugar Company. It is expected that a contract more favorable than any in recent years may be agreed upon.

Messrs. Hansen and Seamans were in Bozeman on February 13 in conference with officials of the Montana State Station regarding cooperative work.

Dan Hansen.

Newlands

The mean maximum temperature for the two-week period ending February 6 was 54.5 with a maximum temperature of 51 on February 5; the mean minimum temperature was $-.9$ with a minim of -17 on February 1; the mean temperature was 16.8° . The mean wind velocity was 2.99 miles per hour. There was 0.85 inch precipitation during this period.

The weather continued cold with record-breaking storms. Many of the small nearby mining camps are snow-bound and highways over the Sierras have been frequently closed. Highway crews succeed in clearing the road only to have another storm or snow slides again blocking traffic. At

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Newlands (Cont'd)

the times travel is permitted, it proceeds under convoy order every few hours, covering a stretch of 39 miles. Likewise, trains are negotiating the trip with difficulty, each trip over the mountains being delayed several hours. A few unfortunate travelers have been caught in snowdrifts and have perished, others have been rescued after several days spent without food and severe suffering from exposure.

This unusual weather has made field work impossible. Some repair work to farm machinery and buildings continues. As soon as warmer weather arrives a great deal of delayed work will be done. There still remains about 50 percent of the WPA project work to be completed. Most of it consists of laying some additional water pipes, preparing some areas for lawn planting and painting buildings.

A five-year spring wheat variety test was completed in 1936, with the following results:

<u>Variety</u>	<u>Five-year average yield per acre</u>
Little Club	1589 lbs.
Spring Federation	1455 "
Early Baart	1328 "
Arizona #24	1278 "

E. W. Knight.

Prosser

During the two-week period ending February 13 the maximum temperature was 46, mean maximum 27.9, minimum -14 and mean minimum 9.8°. The mean wind velocity was 2.21 miles per hour. The depth of the snow on the ground was 10 inches before a chinook wind occurred on February 11. This warm wind caused rapid melting of the snow, which taxed the drains to capacity. Freezing weather occurred during the latter part of the two-week period and 2.8 inches of snow fell on February 13. There are now 102 inches of snow on the ground in Snoqualmie Pass of the Cascade Mountains.

Work for the two-week period consisted of routine office work.

The price of potatoes advanced \$8.00 per ton during this period, U. S. No. 1 now being \$60.00 per ton (sacks furnished), f.o.b. car.

C. A. Larson.

Scotts Bluff

The mean maximum temperature for the week ending February 6 was 37

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Scotts Bluff (Cont'd)

with a maximum on February 6 of 49, the mean minimum was 8 with a minimum on February 1 of -7° . The mean daily wind movement was 8.3 miles per hour. There was 0.01 inch precipitation.

Station activities during the week consisted largely of sorting potatoes. The highest price recently paid to growers for table potatoes was \$2.55 per cwt. Certified potatoes brought \$5.00 per cwt. The demand for potatoes continues firm; the loadings have been relatively light because of cold weather.

At the end of the ninety day period in the lamb feeding experiment at the station, soy bean meal produced better gains than cottonseed cake; cane molasses resulted in better gains than beet molasses; ground corn fodder, which includes the corn, brought better gains than ground stover. Cull beans in a ration is proving quite satisfactory. The all-beet by-product ration including wet-pulp, dry-pulp, beet molasses and beet tops plus a small amount of alfalfa hay, produced the poorest gains. The test is to be continued for another thirty day period.

Negotiations for a 1937 contract between growers and the Great Western Sugar Co. are expected to begin in Denver within the next ten days, according to a statement by S. K. Warrick, President of the Nebraska Non-Stock Cooperative Beet Growers' Association.

The mean maximum temperature for the week ending February 13 was 36 with a maximum on February 13 of 51; the mean minimum was 14 with a minimum on February 9 of -3° . The daily wind movement averaged 13.6 miles per hour. There was 0.01 inch precipitation. During three days serious soil blowing occurred.

Station activities consisted of sorting potatoes, grinding feed for the dairy and lamb feeding experiments, and planting vegetable crops. The second planting of a winter planting test of various crops, including beans, lettuce, peas, onions, parsnips, carrots, and sugar beets was made February 12. The first planting was made November 20. December and January plantings were prevented by unfavorable soil and climatic conditions.

Lionel Harris.

W E E K L Y R E P O R T S

Of The Division Of
 WESTERN IRRIGATION AGRICULTURE
 Bureau of Plant Industry
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(Not for publication without the prior consent of this Division)

Vol. XXXIX

February, 1937

No. 5

Belle Fourche

Report for February

The maximum temperature for February was 55°, with a minimum of -17°. There was .30 inch precipitation.

The cold weather commencing January 4 continued unbroken until February 9. Minimum temperatures were below zero on 35 days during this period and sub-zero temperatures occurred every day from January 11 to February 5, inclusive. This exceeded, by five days, the previous record of 21 consecutive days with temperatures below zero. The weather turned warmer on February 10 and remained mild until the last few days in the month when lower temperatures prevailed. The mean temperature for February was 18°--3° below normal. Strong winds were of almost daily occurrence; however, there was but little soil movement.

The feeder lambs were shipped February 5 and sold on the Sioux City market February 8 at \$0.11 without any cut-back. This was the highest price paid for lambs since last May at Sioux City and was equal to the Chicago top for that day.

The artesian well is now down to a depth of 3800 feet, through the Sundance formation and about 200 feet into the Redbeds. Artesian flow of about 2-1/2 gallons a minute was encountered in the Sundance formation, but the water is too saline to be used for either stock or domestic purposes. Drilling operations are temporarily suspended due to a lack of water for the steam boilers. The present contract calls for drilling to 4400 feet. The Minnelusa sandstone is expected to be reached within this depth.

Boyer Anne.

Newlands

During the two-week period ending February 20 temperatures have materially moderated, the maximum temperature being 58 and the minimum 12°. As a result field activities are gradually being increased to the normal routine. Soil is being hauled to repair levees, fill in low areas and build up a proposed extension on the Station lawns. Manuring of the lower C series plots is also in progress.

WEEKLY REPORTS

February, 1937

Nowlands (Cont'd)

Some of the WPA work has been resumed in repairing buildings, construction, painting and general improvements. However, the frozen condition of the soil around the buildings continues to prevent the excavating of ditches for laying pipes.

Activities throughout the project are returning to normal, as evidenced by the extensive shipping of alfalfa, disking and plowing and the construction of feeder roads. The demands for hay have been heavy, with a resultant increase in price and it is now quoted at \$10 per ton in the stack.

A three-year test of alfalfa varieties was completed in 1936, with the following results:

<u>Variety</u>	<u>Three-year average yield per acre</u>
Grimm	8733 lbs.
Hairy Peruvian	8350 "
Common	8182 "
Baltic	7726 "
Cossack	7661 "

Water conditions for the ensuing season are very favorable, there being 219,140 acre-feet in storage at the Lahontan reservoir, which has a capacity of 273,000 acre-feet. The installation of flash boards may be resorted to again, as in 1936, in order to increase the storage a few additional thousand feet.

Superintendent E. W. Knight is at present on an extended field trip in Arizona and southern California, where he is familiarizing himself with investigations at Yuma, Sacaton and Riverside.

C. I. Moon.

Prosser

During the two-week period ending February 27 the maximum temperature was 55, the minimum 17 and the mean temperature 38.6. There was .24 inch precipitation, which fell in the form of snow. The weather began moderating February 16 followed by rapid thawing of the soil.

The reservoirs of the Yakima Division of the Reclamation Service held 435,000 acre-feet of water February 25. The snow on the ground in Snoqualmie Pass of the Cascade Mountains was 97 inches deep on February 27.

WEEKLY REPORTS

February, 1937

Prosser (Cont'd)

The sugar beet plats in the rotations were harrowed, dragged and seeded the latter part of February. The plowing and harrowing of wheat plats was completed at the end of this period.

Farmers on the new land in the Kittitas Division are having considerable difficulty irrigating steep lands because of erosion. There are three thousand acres in particular that are rather steep and difficult to irrigate. Irrigation water from higher lands is picked up and used again from laterals of lower elevation. The silt load in this run-off water is extremely heavy and fills weir boxes and earthen ditches very rapidly. The use of earthen ditches for distributing the water to corrugations without proper outlets for controlling the water is conducive to erosion and the steeper the slope the greater the erosion because the volume of water is not properly controlled. The Soil Conservation Service has an erosion project in this area and is studying the problem.

The top price for potatoes declined \$5.00 and they are now \$55.00 per ton (sacks furnished) f. o. b. car. Alfalfa hay, in the stack, is \$14.00 per ton.

C. A. Larson.

Scotts Bluff

The mean maximum temperature for the week ending February 20 was 48 with a maximum on the 17th of 60°; the mean minimum was 22 with a minimum on February 20 of 17°. A mean wind velocity of 12.8 miles per hour was sufficiently high twice during the week to cause considerable soil movement.

Station activities during the week included hauling beet tops and straw and repairing frozen hydrants.

The price of table potatoes has advanced from \$2.40 to \$2.50 per cwt.

For the week ending February 27 the mean maximum temperature was 33 and the mean minimum 13° -- the lowest temperature being 2° on February 27. There was .05 inch precipitation.

Station activities during the week included hauling beet tops and storing ice in the potato cellar. The ice, which was hauled from University Lake, was sixteen inches thick when cut and is expected to aid in maintaining proper storage temperatures for seed potatoes this spring.

Lionel Harris.

WEEKLY REPORTSFebruary, 1937Yuma

The maximum temperature for the two-week period ending February 27 was 82 and the minimum was 31°. There was .02 inch precipitation. The mean temperature for the month of February was 56.3°. This is about normal, but approximately 2° colder than February a year ago.

The ginning season for the 1936 crop closed on February 13 with 12,146 bales of cotton reported for the Yuma Project. Included in this figure are 2,379 bales produced on approximately 2,500 acres on the California side of the project.

Alfalfa hay prices are quoted at \$22.50 f. o. b. cars at Yuma, but very little, if any hay, is available for sale. The recent cold weather held back the winter growth of alfalfa and barley pasture to the extent of causing a local shortage of feed. Approximately 20,000 head of sheep and 10,000 head of cattle are on winter pasture on the project.

Alfalfa seed supplies from the 1936 crop are about cleaned up in all warehouses. Latest quotations on alfalfa seed were around \$0.20 per lb.

U. S. Geological Survey reports on the Colorado River for the month of February show the discharge at Grand Canyon to be 524,000 acre-feet; last February it was 357,000 acre-feet. The discharge of the river at Parker, Arizona for the month was 481,000 acre-feet, leaving an approximate storage behind Boulder Dam of 9,608,000 acre-feet as of March 1.

Station work performed during the past two weeks has included the picking and ginning of cotton, disking and plowing cotton stubble plats, planting deciduous nursery blocks, repairing machinery, general irrigating and cultivating.

Visitors to the Station have included Mr. and Mrs. Elmer W. Knight on February 17 and 18; Messrs. B. W. Bloodgood and Colin Taylor of the Division of Agricultural Engineering at Pomona, California and Mr. L. L. Stitt from the Tempe Field Laboratory of the Bureau of Entomology.

E. G. Noble.

W E E K L Y R E P O R T S

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March, 1937

No. 6

Huntley

During the two-week period ending March 6 the climatic observations at the station were as follows: maximum temperature 67, minimum temperature -14, precipitation .52 inch.

Warm weather during the past week has removed all of the snow and fields should soon be in condition to work. The continued severe weather during February further reduced feed supplies and hay and grain are being shipped in from neighboring states. Alfalfa is selling at \$1.7 per ton and feed grain at \$2 or higher per cwt.

The market in Billings for cattle and horses continues active. From 600 to 1,000 head of each class of stock are sold each week. Some of the cattle are in finished condition although mainly they class as feeders. The demand for horses is good and heavy drafters sell from \$300 to \$400 per pair.

Station work during the period included repairs to buildings and routine work of caring for livestock.

Director F. B. Linfield of the Montana State Station was a station visitor March 5.

Dan Hansen.

Newlands

For the two-week period ending March 6 the maximum temperature was 65 and the minimum temperature was 21. There was .07 of an inch of precipitation during this period.

Field work has consisted of manuring plots and levees, and the hauling of soil for levees and low areas. Some disking has been done, but the wet condition of the soil has temporarily retarded this work.

Through the assistance of W.P.A. labor, trenches have been dug and some pipe laid for a sprinkler system, and soil has also been hauled to raise certain lawn areas. Rewiring and erection of power lines have also been accomplished through the assistance of the City of Fallon.

Newlands, Cont'd

Dr. L. S. Vawter, one of the State Experiment Station veterinarians, located in Reno, is now handling the mastitis work and other veterinary activities relative to the dairy herd.

Hay price quotations this past week were \$13 in the stack, but from all appearances the market has broken over the past week-end due to green feed coming along very fast in California and an influx of Idaho and Washington hay. All hay being shipped from Fallon at present is that previously contracted for late last fall. The amount of hay available on the project to date is close to 1,000 tons.

Water storage at the Lahontan reservoir is 219,300 acre-feet. As the dam holds but 273,000 acre-feet and an added 10,000 feet with one foot flash boards irrigation officials are controlling the storage to some extent. About 450 acre-feet are being released daily to allow for flood protection. This water being spilled into Carson Sink.

E. W. Knight.

Prosser

The maximum temperature for the two-week period ending March 13 was 64 and the minimum was 26. A severe dust storm occurred on March 12 and 13.

Work for the period included seeding wheat on nurse crop plats and wheat alone on various rotations. The wheat seeded March 1 emerged March 13. The sugar beet seed planted in the rotation plats are germinating rapidly. Sugar beets planted in August, 1936, for seed production trials were entirely frozen out because of the severe winter. Work on farm fields included hauling manure and plowing.

The Mercer and Hill Sheep Company began moving ewes and lambs from the station to pasture March 13. Feeding experiments conducted on ewes with single and twin lambs are rapidly being concluded.

Mr. Walter J. Clore, Research Assistant in Horticulture, is in charge of the investigative work in truck crops now in progress at the station. An electric hot bed and sash house has been constructed to provide protection for tender plants.

Cooperative wireworm investigations on the Crop Rotation Project will be conducted this year in the same manner as last year. Mr. K. E. Gibson, Junior Entomologist of the Entomology Laboratory of Walla Walla, Washington, arrived at the station March 3 and began sifting soil to determine wireworm populations.

Visitors at the station during the two-week period were Mr. M. C. Lane, Wireworm Laboratory at Walla Walla, and Dr. F. V. Owen, Geneticist, Sugar Plant Investigations, Salt Lake City, Utah.

C. A. Larson.

Scotts Bluff

The maximum temperature for the week ending March 6 was 68, and the minimum was 5, with a mean daily wind movement of 7.7 miles an hour. There was no precipitation. Mild, pleasant weather prevailed during the week, thawing the soil to a depth of approximately four inches, and permitting some disking and leveling of the rotation plots. The soil has been thawing rather slowly, and up to this time it has not been possible to plow. Other station activities included hauling manure, and beet tops.

There has been an extreme shortage of straw in the valley this winter, and the manure which is being spread on the fields contains, in general, a small percentage of bedding. Straw has sold as high as \$6 to \$8 per ton. The price of alfalfa hay has ranged from \$7 to \$9 per ton.

Messrs. Leslie Bowen, Gene Lyons, S. B. Nuckols, and Lionel Harris attended and took part in a round-table discussion on the culture of sugar beets, with officials of the Holly Sugar Company, Thursday, at Torrington, Wyoming.

Mr. R. H. Willis, State Irrigation Bureau Chief, received word that snow in the mountains is about 50% of a year ago, which means that there will not be much water for irrigation in western Nebraska. The earlier reports of abundant snowfall seem to be unconfirmed by these later reports.

The maximum temperature for the week ending March 13 was 67 and the minimum was 16. The daily wind movement averaged 8.8 miles an hour. There was .06 inch of precipitation.

The first major field activities of this season were begun during the week. Frozen soil and inclement weather have prevented earlier field work. Considerable leveling on the plots in Field K and on some of the large fields has been accomplished. Plowing of the plots was started during the week, and manure has been applied to the plots so treated in Field K. Other station activities included disking and hauling hay.

The 120 day period of the lamb feeding experiment ended Tuesday, March 9. The lambs were not quite heavy enough for market and consequently will be held on test until about March 25. The total time which the lambs are fed will be used for the final results of the sheep feeding work this year. The results from the 120 day period will be used at the lamb feeders meeting scheduled for March 25.

The maximum temperature for the week ending March 20 was 60 and the minimum was 11. The mean daily wind movement was 11.5 miles an hour. There was .09 of an inch precipitation.

WEEKLY REPORTS

March, 1937

Scotts Bluff, Cont'd

Station activities during the week included land-leveling on the Walker tract, spreading manure and plowing.

A vegetable growers meeting was held Tuesday, March 16, at Scottsbluff for the purpose of acquainting growers with the culture of vegetable crops for canning purposes. H. O. Werner, T. H. Hankins, and Lionel Harris discussed the culture of vegetable crops and Oliver Stevenson discussed them from the canner's standpoint. The Otbe Food Products Company will can only tomatoes and sweet corn this year, but eventually expect to process asparagus, spinach, red beets, carrots, beans, and peas. Approximately 200 growers attended the meeting.

The annual Potato Day sponsored by the Nebraska Potato Improvement Association was held in Scottsbluff, Wednesday, March 17. Speakers for the meeting, which lasted all day, included H. O. Werner, T. H. Hankins, Marx Koehnke, H. F. Rhoades, Leslie Bowen, Wm. Morrow, L. L. Zook, E. F. McKune, W. B. Banning, L. B. Daniels, M. F. Babb, and Lionel Harris. The production and marketing of potatoes were discussed in detail. On Thursday a similar meeting was held at Alliance for the Dry Land growers.

Mr. H. O. Werner visited the station during the week and made preliminary preparations for his current season work here. Mr. W. B. Banning, State Commissioner of Agriculture, also was a station visitor.

Lionel Harris

Umatilla

The maximum temperature for the two-week period ending March 14 was 67 and the minimum was 27; precipitation, .04 of an inch.

Field work was resumed on March 1. During the period, sweet clover and rye were seeded in fields F2 and F3; the orchard, pyrethrum, and alfalfa seed tests were furrowed for irrigation, and the alfalfa fields harrowed.

Mr. D. C. Smith of the Division of Forage Crops and Diseases, stationed at Pullman, Washington, visited and planted an erosion grass and legume nursery in the blow area west of the station.

A lease between the Northern Pacific Railroad and the Oregon State Board of Higher Education was approved by the Board. This lease gives the station control of the land east, southeast, and south of the station to prevent further erosion damage by sheep.

Official visitors were Carl Larson; P. W. Morse, Extension Dairyman; and G. Wilster, Dairy Manufacture Specialist, Oregon Experiment Station, who conferred at the station on cooperative matters.

WEEKLY REPORTSMarch, 1937

Umatilla, Cont'd

The snow survey by the Bureau of Agricultural Engineering indicates a deficiency of 23% in the moisture in the mountains on March 1 as compared with equal date in 1936, which was below a long-time normal. On March 1 the Umatilla project reservoir held only 14,000 acre-feet. The feed canal is now carrying 340 second-feed, about 20% above recent years due to cleaning by the CCC camp.

H. K. Dean

Yuma

The maximum temperature for the two-week period ending March 13 was 90.0 and the minimum was 40.0; precipitation, trace.

Temperatures higher than normal for this time of the year have encouraged the early planting of cotton. A number of fields have been planted but the bulk of the cotton acreage on the project will be seeded between March 15 and April 1.

The first crop of alfalfa hay is being cut in a few instances about ten days earlier than usual. All old hay and alfalfa straw has been cleaned up due to the acute shortage of forage.

Station work for the past two weeks has included the planting of long staple cotton varieties; preparing land for other cotton variety tests; pruning and pollinating date palms; hauling manure on the A-1 to 8 series; pruning ornamentals; general irrigating and hoeing.

E. G. Noble.

THE HISTORY OF THE UNITED STATES

The first part of the history of the United States is the period from the discovery of the continent by Christopher Columbus in 1492 to the establishment of the first permanent settlements in 1607. This period is characterized by the exploration of the continent by Spanish, French, and English explorers, and the establishment of the first permanent settlements by the English in 1607.

The second part of the history of the United States is the period from 1607 to 1776. This period is characterized by the growth of the colonies, the struggle for independence from Britain, and the establishment of the United States as a new nation. The colonies grew in population and economic power, and the struggle for independence culminated in the American Revolution of 1776.

The third part of the history of the United States is the period from 1776 to the present. This period is characterized by the growth of the United States as a nation, the expansion of territory, the development of industry and commerce, and the struggle for civil rights. The United States grew in size and power, and the struggle for civil rights culminated in the Civil War of 1861-1865.

W E E K L Y R E P O R T S

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No. 7

Belle Fourche

Precipitation occurring from March 21 to 24 materially improved the crop prospects for western South Dakota. The total precipitation for the 4 days amounted to 1.45 inch, of which 1.4 inches fell in the form of snow. Following this storm there were four successive mornings when temperatures were below zero. The latter part of March there were approximately 41,000 acre-feet stored in the Orman Reservoir. It is anticipated that the precipitation which has occurred since the 21st of March will materially add to the present storage.

Beyer Aune.

Huntley

During the two-week period ending March 27 the maximum temperature was 57 and the minimum was 2. There was 0.29 of an inch precipitation.

A storm that occurred March 24 was general over the State and provided varying amounts of much needed moisture in the form of snow. The snowfall was reported to be heavy in the mountain sections where the supply is about normal, and should insure an adequate amount of water for irrigation during the season. However, in the prairie sections of the State the supply of moisture is still deficient on dry farms and ranges.

At a recent meeting of farm leaders and extension workers in Billings, an organization was perfected for combating an expected invasion of grasshoppers and Mormon crickets in Yellowstone and neighboring counties. It is expected that local and Federal funds will be provided for this purpose and a general campaign against these pests by the use of arsenic poisoning is planned.

A contract for sugar beets for the current season has not yet been offered by sugar processors. A meeting of factory representatives and growers is called at Denver during the coming week when it is expected that an agreement will be reached for such a contract. The form of the contract will probably depend to some extent upon final action taken by Congress in the matter of excise taxes and quotas.

No spring field work has yet been possible. Station work included repairs to buildings and equipment and the cleaning of grounds and yards.

Huntley, Cont'd

During the week ending April 3, the maximum temperature was 56 and the minimum temperature was 14. There was 0.25 inch of precipitation in the form of rain.

Weather conditions have not yet been favorable for field activities, and very little outside work has been started except on the lighter soils of the bench areas.

An agreement for a sugar beet contract for the current season was reached during the week at a conference of Great Western Sugar Company officials and growers' representatives in Denver. Under this contract it is expected that substantial increases over prices in 1936 will be paid for the beet crop. The price to be paid for the crop is based on sugar content of the beets, selling price of sugar and benefit payments under the Federal Sugar Act. The estimated price per ton for beets in the Billings area is from \$8 to \$8.50 per ton. It appears probable that a large acreage will be contracted for this season.

Station work included repairs to buildings, equipment, harness and machinery.

Dan Hansen.

Newlands

The maximum temperature for the two-week period ending March 20 was 67 and the minimum was 19, with a mean wind velocity of 4.06 miles per hour. There was 0.30 of an inch precipitation. The mild weather has made the spring plantings possible.

Station activities have included seeding plot C23 to spring wheat; plots B25, B28, B32, B37, C21, Y19, Y20, Y21, Y22 and Y23 to barley; and plot B14 to oats. Manure has been applied to C35, B14, and the upper ends of plots C32, C33, C34, C36, C37 and C39. Also, several bare spots on the "A" series have been manured. All alfalfa and sweet clover plots are being disked to destroy weed growth. The wet winter and early spring days have resulted in a vigorous growth of weeds as well as grain and alfalfa.

The W.P.A. project continues with laying pipe and preparing lawns for seeding. In addition, one man has been employed by the State in cleaning the dairy premises. The cold weather during the latter part of the winter made it impossible to properly care for the corrals and dairy barn.

Farm prices continue fair. Hay is selling for \$10 and \$11 in the stack. There is very little available at this price. Butterfat continues at 35 cents a pound; eggs at 22 cents a dozen; beef at 8 cents and hogs and lambs at 9 cents a pound.

Newlands, Cont'd

The maximum temperature for the two-week period ending April 3 was 70 and the minimum was 21, with 0.93 of an inch of precipitation.

The weather continues cool with very little wind for this time of year. Cool cloudy weather in this vicinity was due to storms over the foothills and Sierra mountains. Some four feet of additional snow has fallen on the watersheds of the western mountains. The indications and computations are for more water than is necessary for irrigation purposes during 1937. Very little water is being stored as the Lahontan Reservoir lacks only 40,000 acre-feet of its capacity storage. Water is wasting down both the Carson and Truckee rivers. A few days of peak spring flow will more than fill the storage available and might cause some damage if the reservoir were filled before the peak load arrives.

The rains over the Sierra foothills have been favorable for grass pasture. This available pasture has been reflected in hay prices in California. The price of No. 1 alfalfa hay dropped from \$28 a ton to \$23 a ton. So far, little drop in hay prices has occurred on this project.

Work at the station has been the usual spring work plus a continuance of W.P.A. labor. The regular station employees have been engaged in cultivating alfalfa, hoeing weeds, planting shrubs, and general cleaning of the premises. The W.P.A. laborers have been building fences, planting shrubs, and laying water pipes.

Plans are being made for next summer's feeding experiments. It is contemplated to discontinue the dry lot feeding of turkeys and hogs, substituting alfalfa pasture instead. Some 200 turkeys will again be on experiment and some 36 hogs will be on pasture experiments.

The work with mastitis on the station dairy herd continues, and 2 cows have been eliminated. There still remains several reactors to the mastitis tests which will be disposed of at the end of their lactation period.

E. W. Knight.

Prosser

The temperatures for the two-week period ending March 27 were as follows: maximum 62, minimum 26.

Irrigation water was diverted to the Sunnyside Canal March 15 and entered the canal at the station March 26. Priming of the canal and main laterals is progressing rapidly and deliveries to farms are expected by the 1st of April. Work for the period included cultivating alleys and rows on the crop rotation series; cleaning ditches; hauling manure; and harrowing alfalfa. Soil samples have been taken on reclamation plots on saline soils for specific conductance determinations.

Prosser, Cont'd

An extended and intensive program in horticulture is progressing rapidly at the station. The number of varieties of tree fruits planted this spring include apples, quince, pears, peaches, apricots, nectarines, plums and cherries. The number of varieties of small fruits include 16 raspberries, 4 black raspberries, 1 purple raspberry, 6 dewberries, 4 blackberries, 18 strawberries, and 24 grapes. Nut tree plantings include 2 varieties of black walnuts and 2 varieties of filberts. A large number of vegetable varieties are also being tested.

Sifting for wireworms on the rotation plats was completed March 27. Some rotations showed a high increase in wireworm population and others showed a slight decrease. This investigation is being conducted by the Bureau of Entomology, Wireworm Laboratory, Walla Walla, Wash.

The land in the Roza Division is now being appraised with the view to preventing speculation. This method was followed in settling the Kittitas Division lands with success.

The price of butterfat declined 1 cent per pound during the two-week period and is now 41 cents per pound. One year ago the price was 30 cents per pound. Farmers are receiving \$45 per ton for No. 1 potatoes; \$30 per ton for No. 2's; and \$10 per ton for the commercial grade. Certified seed of Netted Gem potatoes are costing the farmers \$75 per ton this year.

Visitors at the station were: Dr. E. L. Overholser, Head, Department of Horticulture; and Carter Speed, graduate student in horticulture, State College of Washington, Pullman, Washington.

C. A. Larson

Scotts Bluff

The maximum temperature for the week ending March 27 was 49 and the minimum was 8, with 0.15 of an inch precipitation. Cool weather prevailed during most of the week, freezing the ground to the extent that it was impossible to plow or otherwise work the soil. Station activities consisted largely of hauling manure and repairing farm machinery.

The Lamb Feeders Meeting was held the afternoon of March 23. Despite cold, disagreeable weather most of the best lamb feeders of the valley attended the meeting, which was held in the community room of the Victory Hill schoolhouse. After the meeting the feeders visited the station to view the lambs in the various lots. Speakers on the program included John T. Caine III of the Chicago Stockyards, who discussed the marketing of meat products; Dr. H. M. Tysdal, U.S.D.A., who discussed alfalfa; Jack Maynard, who discussed beet by-products as feed for lambs; and Prof. M.A. Alexander who presented the results of the feeding experiment carried on at the station this season. The station lambs will be shipped to market next week and will be slaughtered by lots in order to determine the effect on the carcasses of the various rations.

Scotts Bluff, Cont'd

Visitors during the week were Dr. H. M. Tysdal; and F. W. Beier, livestock statistician of Denver, Colorado.

The maximum temperature for the week ending April 3 was 67 and the minimum was 17. There was no precipitation.

Mr. Frank Kemp, general manager of the Great Western Sugar Company, announced Tuesday that representatives of growers associations in Colorado, Nebraska, Wyoming and Montana had agreed on terms of the 1937 beet contract, which provides for payments similar to the 1936 contract up to a final net return of \$3.75 per 100 pounds of refined sugar sold, with the grower receiving 75 percent of the increase between the \$3.75 and \$4.75 price. With sugar netting \$3.75 to \$4 a cwt., total payment and calculated Government payment would amount to \$7.17 to \$7.68 per ton of beets testing 16 percent sugar in the Colorado-Nebraska district. The company also announced that the price of seed will be reduced from 16 cents to 14 cents per pound.

Station work during the week consisted of preparing seed beds for grain and sugar beet crops; treating seed grain with formaldehyde to control smut; and hauling gravel and manure. The gravel has been hauled for improving road ways and for constructing concrete irrigation structures.

The 294 lambs fed experimentally at this station during the past season sold on the Omaha market during the week at an average price of \$12.49 per cwt. The lambs were slaughtered by lots and sold to the packer on the basis of carcass value. The rations fed and the price received for the lambs on each ration are as follows:

<u>Lot no.</u>	<u>Rations fed</u>	<u>Price rec'd</u>
1	Corn and alfalfa hay	\$12.65
2	Barley, cottonseed meal, bone meal, ground corn stover (ears removed)	12.50
3	Barley, cottonseed meal, bone meal, ground corn fodder (ears on)	12.65
4	Corn, barley, dried pulp, soybean meal, alfalfa and beet tops	12.65
5	Corn, barley, dried pulp, cottonseed meal, alfalfa and beet tops	12.65
6	Corn, barley, dried pulp, alfalfa and beet tops	12.50
7	Dried pulp, cull beans, alfalfa and beet tops	12.40
8	Dried pulp, cane molasses, cottonseed meal, alfalfa and beet tops	12.40
9	Dried pulp, beet molasses, cottonseed meal, alfalfa and beet tops	12.25
10	Dried pulp, beet molasses, wet pulp, alfalfa and beet tops.	12.25

Note: Where dried pulp is shown, it is Dried Molasses Pulp.

Lionel Harris.

Umatilla

For the period March 15 to April 4 the maximum temperature was 65, the minimum was 31, and the precipitation 1.05 inches. The weather was characterized by frequent rains but materially below normal. While no frosts of consequence occurred the days were generally cool and the absence of warm southwest winds has held the snow in the mountains which was a desirable condition for late spring water. The feed canal has been operated at full capacity and if no freshets occur, the reservoir should be filled in another 30 days. No water has been delivered on the project proper but all of the station has been irrigated from the feed canal.

General field work consisted of cultivation and hoeing perennial crops and hauling manure. The planting of locust and walnut trees along the lane from the county road was completed. Jerusalem artichokes, part of a root crop test, were planted on March 30.

The establishment of a cannery at Pendleton has created an interest in appropriate crops on the irrigation projects in this District. Carrots are being contracted this year for mixing with the peas grown in the wheat country. Cannery officials expressed a desire to contract tomatoes and beans, but the curly-top disease will probably be a limiting factor for these crops. The Blue Lake bean, which is preferred, has been found very susceptible to the disease, particularly when planted late. A time-of-planting test is being made on the station to determine the possibility of having the beans sufficiently advanced in growth to resist the disease before the leafhoppers appear.

Mr. B. F. Dana was at the station March 26 to make the hot bed plantings of tomatoes. Mr. Virgil Hawkes, Agronomist for the Conservation Service, also was a visitor and inspected the grass and legume nursery in the blow area. Most of the plantings have germinated and are making good growth.

H. K. Dean.

Yuma

The mean maximum temperature for the two-week period ending March 27 was 72 and the mean minimum was 45.2. There was 1.64 inch precipitation. The wind movement averaged 2.5 miles per hour. The maximum daily temperatures were about 8 degrees colder than for the same period last year. These cooler days are holding back all of the early planted cotton on the project.

The heavy rain of 1.64 inches on March 16 caused some packing of the top soil on newly planted cotton fields. Some hail was recorded with this rain. Heavier precipitation occurred in the area north of the project. The run-off from normally dry washes was sufficient to break the main Yuma canal at the Unnamed Wash, and the water was out of the canal for 6 days while the break was being repaired. Flood waters damaged several hundred acres in the northwest section of the Bard

Yuma, Cont'd

District and the northeast area of the Indian Reservation. Crop losses were mostly to alfalfa hay and to newly planted cotton.

Carload shipments of project produce have included lettuce, carrots, cabbage and grapefruit. The lettuce season is nearing the close with approximately 1,800 cars reported for the season's crop. Lettuce returns have been abnormally high.

Station work during the period has included the planting of cotton; hauling manure; pruning and planting ornamentals; pruning and pollinating dates; repairing sewer lines; and general hoeing and cultivating. The pigs for pasturing on the irrigated rotations were placed in the alfalfa March 20.

Station visitors included D. W. Bloodgood, of the Division of Agricultural Engineering, Pomona, California; Messrs. Fortier, Gensler and Cox of the Indian Bureau; L. L. Stitt of the Bureau of Entomology, Tempe, Arizona; R. E. Blair, crop statistician, Sacramento, California; and Stuart Lockwood, of the California Department of Agriculture, Division of Entomology.

E. G. Noble.

WEEKLY REPORTS

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No. 8

Huntley

The maximum temperature for the two-week period ending April 17 was 77° and the minimum was 19°. There was .19 of an inch precipitation.

Conditions were favorable for field work during much of this period and good progress was made in seeding small grains and beets in most sections of the Yellowstone Valley.

Feed supplies locally are short and considerable amounts of hay have been shipped in, principally from Wyoming. Alfalfa hay is selling at \$16 to \$18 per ton and feed grains from \$2 to \$2.50 per cwt.

Station work included preparation and seeding of dry land plots and fields to small grains and preparation of beet plots in the irrigated rotations. The ground is in excellent condition for seeding, although the amount of subsoil moisture is light and heavy rainfall will be required to produce satisfactory yields on the dry land plots.

Dan Hansen.

Newlands

The maximum temperature for the two-week period ending April 17 was 80° and the minimum was 18°. The mean temperature was 48.1°. There was .08 of an inch precipitation. Weather conditions are not quite normal for this period of the year. The days and nights remain a little cooler than usual. This has resulted in rather slow growth to alfalfa.

A serious attempt is being made to control weed growth while yet in the seedling stage. Both tractor and horse-drawn cultivators are being used in as far as it is possible. Corners which cannot be reached with such equipment are being hand cultivated.

The "A" series irrigation ditch has been re-shaped and an attempt will be made to sod the banks. Last year a stretch of some 200 feet of sandy banks were treated in this manner as a trial planting. It served very well and an endeavor will be made to continue the process on additional ditches this year. The small crew furnished on the W.P.A. project has been occupied building pasture fences, cleaning hedges, laying some additional drain tile, and planting shrubs.

Newlands, Cont'd

Mr. F. B. Headley of the State Agricultural Station was a visitor on April 16. During his visit 200 turkey poults were leg banded and individually weighed. Two groups of 100 birds each are being handled in separate brooders on two rations. One ration contains a 28 percent protein and the other a 21 percent; 47 percent of the total protein is obtained from animal sources. At eight weeks the rations will be changed. At that time some 6 feeding groups will be arranged and fed on alfalfa pasture lots. This will be a departure from the procedure of the last few years during which time dry lot feeding was conducted.

The Panaca High School agriculture classes were station visitors on April 15. The boys were interested in the work being done particularly with livestock, and the varieties of trees and shrubs grown. The local high school classes find the station activities a great help in their work. Constant use is made of the bulletins of this station and frequent classes of livestock are arranged for their judging classes.

E. W. Knight

Prosser

The maximum temperature for the two-week period ending April 10 was 64° and the minimum was 25°. Orchard heaters were lighted the night of April 10 when the temperature dropped to 28°. Precipitation for March amounted to .73 of an inch, which was .29 of an inch above normal.

There are 81 inches of snow on the ground in Snoqualmie Pass of the Cascade Mountains. The snow has been melting very slowly; therefore the stored water in the reservoirs has not increased so far this year. Irrigation water was diverted to the station on April 6.

Station work included seeding Brome grass in head ends of the rotation series; plowing reclamation plots on saline soils at Outlook; seeding a plot of sweet clover in a pasture series of the rotations; cultivating alleys in the rotations; irrigating alfalfa and sweet clover; and laboratory work on saline soil samples.

New hay is being contracted at \$12.50 per ton, while old hay in the stack ranges from \$10 to \$15 per ton. The top price of U. S. No. 1 potatoes, sacks furnished, is \$40 per ton.

Dr. E. L. Overholser, Head of the Department of Horticulture, State College of Washington, visited the station while on a trip to Yakima to apply boron to pear trees. This chemical will be applied to the soil and injected directly into the trees.

C. A. Larson.

Scotts Bluff

The maximum temperature for the two-week period ending April 17 was 82° and the minimum was 19°. There was .06 of an inch precipitation.

The moisture conditions of the ranges in eastern Wyoming were 67 percent of normal on April 1, as compared to 62 percent a month earlier. Up to the present time spring precipitation in the North Platte Valley is considerably below average. During the week a snowstorm over most of the watershed of the Pathfinder Dam has improved further the ranges and, also, the irrigation water prospects for the coming season. On April 16, storage in the Pathfinder Dam amounted to 211,880 acre-feet of water as compared with 164,930 acre-feet on the same date last year. Inflow into the dam on April 16 was 4,704 s.f., as compared with 3,756 s.f., last year.

The oat plots have been planted in field K. Good soil moisture exists to a depth of 14. to 16 inches on these plots, but below 16 inches the soil is very dry. Sugar beets have been seeded in manured rotations nos. 45 and 121 for a variety test being conducted by Mr. S. B. Nuckols. The following crops have been planted during this period: Oats, sweet clover, alfalfa, wheat, and barley on the rotation plots, and approximately 20 acres of barley and alfalfa on the Walker place.

Station activities included the construction of concrete irrigation checks; the installation of a pipe line for irrigating lawns and trees around the station buildings; and hauling manure and gravel.

Professor H. P. Davis visited the station during the week in the interest of dairy work.

Lionel Harris.

Umatilla

The maximum temperature for the week ending April 10 was 69° and the minimum was 32°. The precipitation amounted to .51 of an inch.

The stand counts in the alfalfa winter-killing test disclose that the application of superphosphate did not have a beneficial effect in preventing winter-killing this winter. The soil went into the winter below the wilting point due to irrigation water shortage and, apparently, moisture was a greater factor than fertility. In 1935-36 the superphosphate decreased the killing of a tender variety by 24.9 percent, while in 1936-37 the winter-killing with treatment was 29.4 percent greater than the untreated check. The treated portion of the test had considerably less moisture in September than the check portion. The average moisture in the winter-killing test on September 11 in three feet of soil was 3.86 acre-inches. On March 30, after 3.41 inches of precipitation, the three feet contained 3.75 acre-inches of moisture. The lowest moisture was 2.06

Umatilla, Cont'd

acre-inches on October 2, in a soil having a mean wilting point of 2.49 acre-inches for the three feet.

Station work consisted of cleaning corrals, repairing fences, and trimming shrubbery.

Dr. J. R. Haag, nutrition chemist, and Dr. I. R. Jones, dairyman, Oregon Experiment Station, spent two days at the station analyzing blood phosphorous in the dairy herd and planning future work. The blood phosphorous for the herd is around 70 percent of normal and did not vary materially whether the cows were fed hay alone, or hay and grain. Alfalfa in this area is just on the border line of being deficient in phosphorous.

While on a trip to eastern Oregon collecting snow survey data, Mr. R. A. Work, Bureau of Agricultural Engineering, stationed at Medford, Oregon, visited the station to secure data on winter soil moisture.

H. K. Dean

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Belle Fourche

Report for April

The maximum temperature for the month of April was 79° and the minimum was 10°. Freezing temperatures occurred on 18 nights. The precipitation for the month was .71 of an inch as compared with ^{the} 1.59 inches average. The total precipitation from January 1 to April 30 was 3.01 inches as compared with the 3.15 inches average. The mean temperature for April was 42° as compared with 44° average. The first week of the month was unusually cold but near normal temperatures prevailed thereafter until the last week which was relatively cold. Very high wind occurred on the night of April 11, but a light shower of rain prevented soil blowing. High winds and more or less soil blowing occurred on April 21, 24 and 27.

Storage in the Belle Fourche Reservoir is very low - only 55,000 acre-feet on April 30 as compared with 85,000 acre-feet last year. At the present time the allotment for water is only 6 inches.

The month of April was favorable for field work. The grains in the irrigated and dry land rotations were planted April 15 to 24, and the planting of sugar beets was completed April 27. Land preparations such as duckfooting, leveling and harrowing were completed for all crops to be planted at a later date.

Mr. E. S. Lyons, Bureau of Chemistry and Soils, was here during the week of April 24 and put out three trial experiments with commercial fertilizer; one here at the Experiment Farm, one at Vale, and one at Belle Fourche. In addition, five new rotations were added in field A, using phosphate.

The drilling of the well is progressing satisfactorily. The total depth at this time is 4,155 feet, the Redbed formation not having been penetrated.

Work on the W.P.A. project was resumed April 25 with 12 men. The work to date has been cleaning irrigation ditches, fencing and cleaning forestry.

Owing to a likely prospect of a shortage of irrigation water, only

Belle Fourche, Cont'd

about 6,000 acres of sugar beets have been signed. The Sugar Company is looking for more acreage, even if some must be abandoned to keep our allotted quota for this District.

There has been a heavy shipment of stock back to this territory, being the same stock shipped out last fall due to lack of feed. The range, with average rainfall in May and June, should take care of the stock.

Beyer Aune.

Huntley

The maximum temperature for the two-week period ending May 1 was 77⁰ and the minimum was 24⁰. There was .26 of an inch precipitation.

Dry weather continued during this period, and for the entire month of April the total precipitation amounted to only .45 of an inch. Irrigation for the germination of spring seeded crops will begin within the next few days unless rain occurs.

Spring seeding is well advanced in all sections of the valley. For the entire local beet factory area a total of slightly more than 25,000 acres is being seeded to sugar beets. This is an increase of about 6,000 acres over 1936.

Other station activities included the preparation of land and the seeding of sugar beets, alfalfa and small grains in the rotation plots.

Professor H. E. Morris and Mr. Mitrofan Afanasiev of the Botany Department of the Montana State College visited the station on April 30 in connection with some cooperative crop work.

Dan Hansen

Prosser

The maximum temperature for the two-week period ending April 24 was 69⁰ and the minimum was 28⁰.

The reservoirs of the Reclamation Service for the Yakima Project are filling at the rate of approximately 5,000 acre-feet per day. On April 23 there were 581,305 acre-feet of water impounded in all the reservoirs. Since the capacity of the reservoirs is one million acre-feet, there is sufficient snow in the mountains to assure an adequate water supply for the coming season.

Prosser, Cont'd

Work for the period included cultivating sugar beets, planting and irrigating brome grass in head ends and roadways of the rotation series. The irrigation of reclamation plots on saline soil near Outlook began on April 17 when the first water was diverted to the plots. Several hundred feet of concrete irrigation pipe were laid in various parts of the station to replace old flumes and increase the efficiency of irrigation on experimental plots.

The orchards had to be heated several times during the period to prevent damage by frost. However, there has been practically no frost damage so far this season.

There has been little change in the market price of farm products.

Visitors at the station included: Mr. H. H. Mottern and Mr. Otto Johnson, Bureau of Chemistry and Soils, Fruit By-Products Laboratory, Pullman, Washington; Messers. Marsh and Lee, Bureau of Chemistry and Soils, Frozen Pack Laboratory, Seattle, Washington; and Mr. Harley D. Jacquot, Superintendent of the Lind Field Station, Lind, Washington.

C. A. Larson

Rubidoux Laboratory

The Graduate School of the University of California has accepted a thesis by V. P. Sokoloff, Junior Agronomist, Rubidoux Laboratory, Riverside, California, on the subject "Effect of Neutral Salts of Sodium and Calcium on Carbon and Nitrogen of Soils". On April 22 Mr. Sokoloff successfully passed his final examination and the degree of Doctor of Philosophy will be conferred upon him by the University on May 22.

In studies having to do with the effects of the salt constituents of irrigation waters on soil fertility, Doctor Sokoloff has found that the rate of development of nitrate and total nitrogen, as well as carbon dioxide and total combined carbon from the humus fraction of the soil is substantially higher both in aerated and unaerated soils incubated in the laboratory when the principal cation of the soil solution is sodium than is the case where the principal cation is calcium.

As a result of Sokoloff's findings, we are now setting up greenhouse experiments to determine if the stimulated growth which has sometimes been observed to follow the addition of sodium salts to land is not in fact attributable to nitrate stimulation that results from the action of the sodium, rather than to the direct effect of the salt as has sometimes heretofore been concluded. It is still regarded as highly probable that many plants are benefitted by very small quantities of chloride, but it is believed that the instances of benefit from concentrations of chloride greater than those already present in even the better irrigated lands are probably rare. On the basis of Sokoloff's data, stimulation of plant

Rubidoux Laboratory, Cont'd.

growth would probably be confined to soils in which available nitrate is limited and the increased soil fertility would be at the expense of humus and organic reserves in the soil.

Frank M. Eaton

Scotts Bluff

The maximum temperature for the week ending April 24 was 76° and the minimum was 23°. The daily wind movement averaged 10.5 miles an hour. There was .15 of an inch precipitation.

On April 23 storage in the Pathfinder Dam amounted to 287,780 acre-feet of water as compared with 225,840 acre-feet on the same date last year. Inflow into the dam on April 23 was 4,029 s.f., as compared with 5,232 s.f., last year.

Sugar beets have been planted on the rotation plots, except in field E where beets follow sweetclover. Plowing and seeding have been delayed on these plots to escape the troublesome regrowth of sweetclover. Phosphate has been applied at the rate of 300 pounds per acre to the new phosphate rotations. A 13 acre tract has been divided into 4 equal plots and seeded to sweetclover, alfalfa, and a grass mixture for future pasture tests with dairy cows. Additional activities during the week included plowing and leveling ground to be planted to corn. Dr. H. M. Tysdal has been at the station transplanting alfalfa plants for wilt resistant studies and breeding work.

An additional payment of 50 cents per ton on the 1936 sugar beet crop in the Nebraska district of the Great Western Sugar Company was made this week. The payment totalled over \$338,000.

Another weekly blanket increase in lamb shipments from the combined northern Colorado, Scottsbluff, and Arkansas Valley sections was reported for last week. Total shipment from the Scottsbluff District was 158 cars as compared with 94 cars in the corresponding week a year ago.

The maximum temperature for the week ending May 1 was 61 and the minimum was 27. There was .58 of an inch precipitation. The daily wind movement averaged 15.5 miles per hour. The wind movement during April has been unusually high on several occasions.

On April 30, water stored in the Pathfinder Dam amounted to 337,750 acre-feet as compared with 263,500 acre-feet on the same date last year. However, the inflow last year on April 30 was 5,007 s.f., as compared with 3,287 s.f. this year.

The precipitation for April was .81 of an inch as compared with 1.46 inches last year, and a 27-year average of 1.83 inches. At this time

Scotts Bluff, Cont'd

moisture in the soil is sufficient to germinate early planted crops. The small grains have emerged, and alfalfa, sweetclover, and sugar beet seeds have sprouted but are not up. Cold weather during the last half of April has retarded germination and growth to some extent.

The dairy dry stock and several horses, which are not needed at the station now, have been turned in the University pasture.

Station activities included plowing, enlarging the basement under Mr. Rogers' house, planting shrubs on the station grounds, and pouring cement for a settling reservoir at the head of the pipe line which is being installed to irrigate the lawn.

On April 26 the Superintendent and Mr. Rogers visited the Cheyenne Horticultural Station in the interest of the cooperative work between that station and ours in testing trees and shrubs. Some plant material was brought back to the station and additional material will follow later.

Visitors at the station were Professor H. J. Gramlich, Head of the Animal Husbandry Department, University of Nebraska; and Mr. Fred H. Bateman, manufacturer of Iron Age machinery.

Lionel Harris.

Yuma

The maximum temperature for the two-week period ending May 1 was 97° and the minimum was 41°. There was no precipitation. The mean wind velocity was 2.8 miles per hour.

The temperatures for April were about normal, but nearly 4 degrees cooler than April 1936. This cooler weather, with periods of prevailing winds, has not only delayed the growth of newly planted cotton but in many cases has caused fields to be replanted. It is estimated that 40 percent of the cotton on the project was replanted during the month.

The United States Geological Survey report on the Colorado River for the month of April shows the discharge of the river at Grand Canyon to be 1,560,000 acre-feet. For the same period in 1936 it was 1,298,000 acre-feet. The discharge at Parker, Arizona, below Boulder Dam, was 540,000 acre-feet, leaving an estimated storage in Lake Mead of 11,060,000 acre-feet.

Lettuce shipments from the project were discontinued on April 10. The total shipments amounted to 3,378 carloads. Alfalfa hay and carrots are being shipped at the rate of 2 cars per day. Following the installation of 2 x-ray machines in the packing plant, grapefruit shipments have increased from 2 to 6 carloads per day. This device increases the volume of fruit from which most of the frost-injured portion has been removed.

Yuma, Cont'd

Other station activities included the digging, packing and shipping of approximately 200,000 alfalfa plants from the wilt-resistant nurseries to Logan, Utah; Manhattan, Kansas, Lincoln, Nebraska; and Madison, Wisconsin; planting and cultivating cotton; harvesting alfalfa hay; roguing nurseries; general irrigating and cultivating.

Station visitors included Mr. C. O. Grandfield, Assistant Agronomist of the Division of Forage Crops, of Manhattan, Kansas; Mr. D. W. Bloodgood, of the Division of Agricultural Engineering, Pomona, California; and Mr. L. L. Stitt, Division of Entomology, Tempe, Arizona.

E. G. Noble.

M I S C E L L A N E O U S

Mr. C. S. Scofield returned to Washington on May 1, from a western field trip.

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No. 10

Huntley

The maximum temperature for the two-week period ending May 15 was 83° and the minimum was 28°. There was .15 of an inch precipitation.

There has been 1.17 inches of rainfall since March 1 which is less than half the normal amount. Irrigation has been necessary to provide moisture for the germination of all spring seeded crops. With the heavy demand for water and a somewhat limited supply, delivery has been placed on a rotation basis. While the main Huntley Canal has a capacity of over 550 s.f., the amount of water available at this time is only slightly more than 400 feet. However, it is expected that high water in the river, which usually occurs about June 1, will increase the canal flow to capacity.

The seeding of all crops except beans and potatoes has been completed.

Station activities included the seeding of beets, grains and alfalfa in the rotation fields; constructing ditches; and irrigating beets, grains and alfalfa.

Professor F. B. Linfield, Dean and Director of the Montana Experiment Station for the past 35 years, has announced his resignation effective September 1. He will be succeeded by Professor Clyde McKee who is at present an Agronomist at the Montana Station. Dr. Alfred Atkinson, President of the Montana State College, has announced his resignation, effective September 1, to accept a similar position at the University of Arizona.

Dan Hansen

Newlands

The maximum temperature for the three-week period ending May 8 was 70.2° and the minimum was 33.9°. The average wind velocity was 4.37 miles per hour, and there was .19 of an inch precipitation. Continued cool weather has resulted in a rather slow growth of alfalfa. However, an assured supply of irrigation water and a hot summer will quickly offset any backward growth during the spring.

Farm prices have varied very little during the past few weeks. Eggs are selling at 22¢ per dozen; butterfat at 34¢ per pound; beef, 8½¢;

Newlands, Cont'd

lambs, 9¢; hogs, 9¢; and alfalfa, \$10 per ton. Little of the latter commodity is available as practically all the surplus hay has been purchased.

During the operation of the W.P.A. project, which has been completed, most of the station buildings were painted; work benches were improved and cabinets completed in the laboratory; two platform scales were installed; two old buildings were remodeled into a chicken house and tractor shelter; and the front porch of one residence was enclosed with glass windows. About 1,200 feet of 2-inch pipe were laid for fire protection purposes, and 400 feet of $\frac{3}{4}$ -inch pipe for a sprinkling system; 400 feet of old hedges have been replaced; several large trees have been cut and stumps removed to allow for further landscaping; two small sumps were constructed to supply water for use in irrigating lawns and gardens.

At the present time an additional project has been approved which provides for a continuation of our landscaping plans, the construction of a shelter for the horses, building and repairing fences, and general repair and cleaning of premises. This work will commence as soon as men are available.

Station activities during this period have included cultivating fields to prevent weed growth, cleaning ditches, preparing corn ground for seeding, and repairing irrigation structures.

A pig experiment was started with 30 pigs, which were placed on alfalfa pasture. The object of the experiment, which is a repetition of a similar experiment conducted last fall in dry lots using alfalfa hay as a roughage, is to determine the economy of growth of large, medium and small pigs of the litters when fed the same ration. The result of last year's experiment indicated that aside from the time required, it was as cheap to raise the small pigs to maturity as it was the larger ones. The smaller pigs ate less but required a longer period of time to reach a 200 pound weight.

A turkey experiment was started also. The 200 turkey poults were leg-banded and weighed individually upon arrival. One hundred were placed on a mash with a 21 percent protein and the other 100 were given a mash with a 28 percent protein. After 2 weeks it was found the 28 percent group had almost trebled the other group in weight and averaged 13 percent heavier. The lighter birds were then gradually worked into the higher protein feed.

E. W. Knight.

Prosser

The maximum temperature for the two-week period ending May 8 was 88° and the minimum was 29°. The mean wind velocity was 3.55 miles per hour. There was .05 of an inch precipitation. Owing to low temperatures and possible damage to fruit trees, the orchard heaters were lighted on April 29 and May 5.

Prosser, Cont'd

The irrigation system was improved this season by the addition of approximately 2,000 feet of concrete pipe, some of which has been fitted with galvanized pipe risers for diverting the water directly to corrugations. Forty-five hundred feet of galvanized iron pipe has been laid in the pear orchard and the family orchard as a part of the permanent spray system.

The corn plats in the rotation series have been prepared for planting, and Brome grass has been seeded in roads. The sugar beet plats that did not show wireworm damage were blocked and thinned, and all the plats were cultivated, ditched, and irrigated. Many farmers in the valley are now blocking and thinning sugar beets. The first irrigation water was applied two weeks later this season than last season.

The price of No. 1 hay in the stack ranges from \$10 to \$15 per ton. The top price of potatoes is \$44 per ton, sacks furnished, f.o.b. car. Soft white wheat is being sold by growers for \$1.12 per bushel.

Mr. H. C. Diehl, Senior Physiologist, Frozen Pack Laboratory, Seattle, Washington; and Dr. Chester Schwartz, Horticulturist, Western Washington Experiment Station, were station visitors.

C. A. Larson

Scotts Bluff

The maximum temperature for the two-week period ending May 15 was 72° and the minimum was 30°. The daily wind movement averaged 10.6 miles per hour. There was .82 of an inch precipitation.

On May 14 the water stored in the Pathfinder Dam amounted to 403,880 acre-feet as compared with 333,250 acre-feet on the same date last year. The inflow was 4,769 s.f. as compared with 4,044 s.f. last year.

There is only a limited amount of moisture in the soil but sugar beets have emerged and it appears that a good stand will be obtained on most plots. There is some variation, however, in the stand and growth; the poorest being on the fall-plowed plots where beets follow oats.

Station activities included planting corn, installing cement irrigation checks, planting a windbreak on the Walker place, pouring cement for the basement of Mr. Rogers' house, and hauling manure.

Station visitors included Dr. A. C. Hildreth on May 6 and 8; and the Smith Hughes Class of the Gordon High School on May 7.

Lionel Harris.

Yuma

The maximum temperature for the two-week period ending May 15 was 109° and the minimum was 45°. No precipitation was recorded. Eleven days were clear and three were partly cloudy.

Temperatures higher than normal combined with winds have dried out the soil on much of the spring planted cotton fields. Early irrigations have been made in many cases which in normal years would not be necessary until the middle of June. The loss of young cotton plants from "sore shin" and from injury by cutworms has been widely prevalent.

Project crops moving to market in carload lots are carrots, alfalfa hay and grapefruit. Carrot prices have advanced to \$3 per crate. Hay has dropped to \$11 per ton baled in the fields. Wheat and barley are being harvested on the project also, but all of this grain will be consumed locally as stock feed.

Station work has included the binding and threshing of all wheat and barley plats; thinning and cultivating cotton; planting grass nurseries; planting cotton on the late seeding blocks; general hoeing and cultivating.

Station visitors have included Mr. C. J. King, Superintendent of the U. S. Field Station, Sacaton, Arizona; Messrs. T. P. Cassidy and T. C. Barber of the Division of Cotton Insects, Bureau of Entomology, Tucson, Arizona; and Mr. D. W. Bloodgood, Division of Agricultural Engineering, Pomona, California.

E. G. Noble.

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No. 11

Newlands

The maximum temperature for the two-week period ending May 22 was 78.2° and the minimum was 32°. The average wind velocity was 3.87 miles per hour. There was no precipitation. The warmer weather during the past two weeks has resulted in a rapid growth to the alfalfa.

During the period the usual farm work has continued. One complete irrigation was given; corn was planted on about 6 acres for silage purposes; ditches were hoed to remove weeds; an area west of the station buildings was prepared for pasture seeding; and numerous flowers and shrubs have been planted.

Thirteen cows were turned on pasture May 17th. They are being used to determine the carrying capacities of grass pastures as compared with Ladino clover pastures. An experiment a few years ago showed that Ladino provided more feed per acre than grass pasture mixtures; an acre of Ladino averaged 4-1/2 tons, while an acre of grass mixtures averaged 4 tons.

Mr. F. G. Harden, Office of Experiment Stations, accompanied Mr. F. B. Headley, of the University staff, on a tour of inspection of the cooperative work being done at this station.

E. W. Knight.

Prosser

The maximum temperature for the two-week period ending May 22 was 81° and the minimum was 34°. The wind movement averaged 3.41 miles per hour. There was .04 of an inch precipitation.

The water in the reservoirs of the Reclamation Service increased 107,443 acre-feet in the past two weeks. There were 814,656 acre-feet impounded in the reservoirs on May 22. The capacity of the reservoirs is slightly over one million acre-feet.

Station activities included the seeding of alfalfa and sweetclover in wheat plats; planting corn; thinning and irrigating sugar beet plats. Yearling ewes were placed on the pastured rotations to graze the sweetclover before plowing the plats for potatoes.

Prosser, Cont'd

Investigators from the wireworm laboratory at Walla Walla, Washington, are doing cooperative work at the station in treating potato plats with naphthalene with a view to reducing the wireworm populations. Some of the plats being treated have wireworm populations amounting to twenty worms to the cubic foot. These plats are not in the crop rotation series.

Visitors at the station were: Dean E. C. Johnson, College of Agriculture; Dr. E. L. Overholser, Head, Department of Horticulture, and Dr. Eikman, Department of Entomology, State College of Washington, Pullman, Washington; and Dr. H. P. Barss, Principal Botanist, Office of Experiment Stations, Department of Agriculture Washington, D. C.

C. A. Larson

Scotts Bluff

The maximum temperature for the week ending May 22 was 88° and the minimum was 33°. The daily wind movement averaged 12.0 miles per hour. There was .07 of an inch precipitation.

Irrigation water has been turned in most of the laterals throughout the Valley, and is being used on small grain and alfalfa which have been seriously limited by deficient soil moisture. The irrigation of small grain and alfalfa will commence next week at the station.

Station activities consisted largely of preparation for irrigation. A sweet corn variety test including 48 strains, and an onion variety test have been planted for Dr. H. O. Werner. A small sudan grass pasture has been planted for the mastitis dairy cows, and some cane and corn have been planted on the dry land. The basement under Mr. Rogers' house has been completed, except for the installation of a furnace.

Sugar beets have made good growth. They are approaching the 4-leaf stage, and will be ready to thin next week. Thinning has already begun in some places in the Valley. No official figures on the acreage of sugar beets are available now, but it is certain that the acreage planted this year is smaller than last year's acreage. The acreage of early potatoes is considerably larger than the acreage last year.

Storage water in the Pathfinder Dam on the 22nd of May was 454,850 acre-feet as compared with 352,950 acre-feet on the same date last year, and inflow into the dam was 6,573 s.f. as compared with 6,936 s.f.

Lionel Harris

Umatilla

The maximum temperature for the three-week period ending May 22 was 91° and the minimum was 33°. The average wind movement was 6.2 miles per hour. There was .04 of an inch precipitation.

Somewhat below normal temperatures during the spring months have caused slow melting of snow in the mountains with the result that the feed canal has run to capacity and Cold Springs Reservoir is nearly full.

In addition to the usual routine work for the season (hoeing, irrigating and cultivating), plantings of soybean varieties for hay and seed were made. Considerable interest in soybeans has been created in Oregon by the offer of a vegetable oil mill in Portland to buy beans in quantities at Chicago prices. Soybeans do not do well in western Oregon but do offer some promise in the lower altitude sections of eastern Oregon.

Five varieties of carrots and 22 of the superior selections of the Umatilla squash were planted as part of tests looking toward the development of succulent crops for winter feeding to dairy cattle. Jerusalem artichoke had been planted previously. Silage yields on these sandy soils are rather ordinary, but the crops in this test appear, from observation, to offer possibilities. The squash will be used, also, for determination of their yield and resistance to curly top.

Most of the week ending May 23 was spent assisting Mr. B. F. Dana, Horticultural Crops and Diseases, in making the curly top plantings for the year. An additional lath shelter facing the prevailing winds has been constructed to ascertain if the leafhoppers will do more damage than in those faced away from the wind. Eight susceptible varieties of tomatoes are planted in each. The slip joint sprinkler system will be further checked as a means of control. Forty-four selections of tomatoes from previous years' tests and 84 new foreign tomatoes are included in the trials. Two hundred eighteen single plant selections of beans from 1935 and 1936 which have shown some resistance are planted. Approximately 1,200 selections and varieties are included in this year's tests.

Mr. A. F. Sievers spent a day at the station inspecting the pyrethrum planting. The plants came through the winter with a loss of 8.5 percent.

While on a field trip in eastern Oregon, Professor D. D. Hill, Oregon Agricultural College, and 27 of his advanced students spent one-half day observing the various station activities. Mr. Virgil Hawkes of the Conservation Service Nurseries located at Pullman, Washington, inspected the desert grass and legume plantings.

H. K. Dean.

Yuma

The maximum temperature for the two-week period ending May 29 was 108° and the minimum was 52.0°. There was .03 of an inch precipitation. Temperatures very much below normal during the last week will probably show a record for this season of the year. A maximum of 80° on May 26 indicates the unusualness of the weather.

Yuma, Cont'd

Cooler weather has helped cotton by permitting more field work to be done in the way of cultivating. Early irrigations, which were necessary to improve stands, have caused woody and grassy fields.

The heavy infestation of aphid on alfalfa made it necessary in many cases to cut an additional crop of hay before turning the fields to seed. The aphid injury has been reported from all sections of the project and in the Gila Valley.

Station activities included the plowing of barley and wheat stubble plats; putting up the second cutting of alfalfa hay; cultivating and thinning cotton; planting soybean varieties; roguing clover and grass nurseries; cutting down eucalyptus trees on the north line next to the rotation plats; general irrigating and hoeing.

E. G. Noble

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June, 1937

No. 12

Belle Fourche

Report for Month of May

The maximum temperature for May was 98° and the minimum was 28°. The last killing frost this spring occurred May 12. The total precipitation for May was 2.03 inches as compared with the average of 2.96 inches. The total from January 1 to May 31 is 5.04 and the average for the same period is 6.11 inches. May was exceptionally dry, particularly around the vicinity of Newell, until May 28 and 29 when a total precipitation of 1.60 inches was recorded.

Due to unusually dry conditions in April and the early part of May, poor uneven stands resulted on all crops except early seeded grain. The stands of sugar beets were uneven and very little growth was made until after the rains the last week in May.

Irrigation water was turned into the canals on May 14 and the alfalfa in the rotations was irrigated. Irrigation water in the Belle Fourche reservoir has been limited to about one-half acre foot for the season. After the rain of May 29 the reservoir outlets were closed. The flow into the reservoir was materially increased and crop conditions are very much improved at this time.

The contracted depth of 4,400 feet was reached on the artesian well on May 12. All the formations were of, or greater than the maximum thickness estimated. As a consequence the Minnelusa sand was penetrated only to a (ness depth of 50 feet. The flow came to the surface, but amounted to less than one gallon per minute.

Beyer Aune.

Huntley

The maximum temperature for the two weeks ending May 29 was 99° and the minimum was 26°. There was .3 of an inch precipitation.

Dry weather continued during this period with several days of high temperatures and wind. Crop conditions are generally rather poor and below average at this time, due to prolonged drouth and unfavorable weather. The supply of water has been adequate for all needs during the past two weeks since the high water in the river has filled the canals to capacity.

Huntley, Cont'd

A severe wind and dust storm on May 28 resulted in rather serious damage to sugar beet fields in all sections of the valley and a comparatively small acreage of sugar beets will be abandoned because of the loss of stand. The damage caused by this storm at the station made it necessary to reseed six plots of beets in the rotation fields.

Station activities included irrigating, preparation of land, and seeding beans and potatoes.

The maximum temperature for the week ending June 5 was 83° and the minimum was 38°. There was .50 of an inch precipitation.

A rainfall of .50 inch that occurred on June 4 was the heaviest single precipitation recorded here since July 1936. Occasional light showers during the past three months have amounted to a total of 1.55 inches while the normal for this period is 4.12 inches. The rain of June 4 was reported to be general over the eastern half of the State and was particularly beneficial to crops that have been "irrigated up".

Damage to crops by grasshoppers and Mormon crickets is reported to be serious in some sections of Yellowstone and adjoining counties. An extensive control campaign is being carried on by State and Federal Agencies and in the Pryor area, south of Billings, several hundred men are employed in the construction of barriers and the spreading of poisoned bait for the control of crickets. Locally no crickets have occurred and grasshoppers are so far found in only small numbers.

Station work during the week included irrigation of late seeded crops and alfalfa and the first irrigation of all fields and plots will soon be completed. The supply of water for irrigation continues to be sufficient for all needs.

Dan Hansen.

Newlands

The maximum temperature for the two-week period ending June 5 was 89° and the minimum was 33°. The average wind velocity was 3.79 miles per hour. There was .30 of an inch precipitation.

The temperatures during the month of May were slightly above normal. The monthly mean was 59.5° as compared with the 31-year mean of 57.3°. Such climatic conditions have resulted in normal growth of crops, and the indications are that average crops will be harvested. Few reports have been received regarding crop pests. There are present, however, in widely scattered areas about the Project, some aphids and alfalfa weevils.

The water situation is as favorable as last year's. The reservoir is within 10,000 acre-feet of its storage capacity. Another week should see the water flowing over the crest of the dam if steps are not taken to use additional storage facilities.

Newlands, Cont'd

The work at the station consisted of irrigating, cultivating corn, hoeing ditches, building turkey pasture fences and houses, and mowing the sweetclover on the "A" series of plats.

On June 4 a dairy and pasture crop demonstration was held at the station. About 35 interested farmers inspected the field plats of alfalfa varieties, hog and cow pastures, and the dairy herd. Information was presented as to the best methods of handling the plantings, etc., and comparisons were available as to the pastures best adapted to local conditions.

The turkey poults will have completed their first 8 weeks on June 10, and at that time will be placed on alfalfa pasture. There will be several groups on various feeds. The previous work with turkey feeding, as conducted last year in dry lots, will be duplicated on pasture. The object of the experiment is to determine the proper amount of protein in the feed during the several periods of growth.

The mastitis work with the dairy cows has reached a place where it has been decided to remove some of the most affected cows from the herd. During the next 6 months 13 cows will be disposed of, depending on the production of each individual. During this same period, 8 heifers will freshen. Six of these heifers have been sired by the proven sire that was obtained from Huntley. These are the first of this bull's heifers to freshen.

E. W. Knight.

Prosser.

The maximum temperature for the 2-week period ending June 5 was 98° and the minimum was 34°. The mean hourly wind velocity was 2.59 miles. There was no precipitation. The recent hot weather has increased the run-off from the snow in the high mountains into the reservoir. On June 5 the reservoirs of the Reclamation Service contained 904,000 acre-feet.

Station activities included routine irrigation and cultivation work. Sweetclover plats in the rotations were cut and weighed green. Moisture samples were taken to compute the tonnage of hay.

Representatives of the Frozen Pack Laboratory, Bureau of Chemistry and Soils, Seattle, Washington, have set up a canning laboratory in one of the poultry houses west of the office building, and were ready at the end of the 2-week period to can and freeze vegetables and soft fruits.

C. A. Larson

Scotts Bluff

The maximum temperature for the week ending May 29 was 87° and the minimum was 49°. The daily wind movement averaged 7.2 miles per hour. There was .12 of an inch precipitation.

Scotts Bluff, Cont'd

The first irrigation water of the season was turned on at the station Monday, May 24. Practically all of the grain and alfalfa have been irrigated. Beets were thinned and a variety test of potatoes was planted for Dr. H. O. Werner. Dr. R. W. Goss and Mr. Deacon planted numerous strains of potatoes and beans for disease resistant tests. Dr. Mitrofan Afanasiev was a station visitor, also, during the week.

Sheep were turned on the sweetclover pasture in rotations 41 and 45 and on the borders of the station; 6 shotes were turned on the alfalfa pasture in rotation 65.

The maximum temperature for the week ending June 5 was 75° and the minimum was 35°. The daily wind movement averaged 11.3 miles per hour. There were 2.29 inches of precipitation.

The high plains area east of the Rocky Mountains, extending from central Colorado to North Dakota, has benefited immeasurably during the week by precipitation which varied from 2 to 3.5 inches. In all but a few local areas the rain fell steadily and slowly, and all of it penetrated the soil. Precipitation at the station amounted to 2.29 inches, consequently the irrigation water has been shut off. On Friday, June 5, snow fell in eastern Wyoming and extended into Nebraska. Snow and rain fell at the station but the snow was not thick enough to blanket the ground. However, it caused the temperature to drop, threatening tender plants. A few transplanted tomato plants, and some early potatoes were damaged slightly by the low temperatures, which during two nights were among the lowest ever recorded this late in June. Newly transplanted tomato plants in the varietal trials were protected by covering them with sacks and newspapers. The storm extended westward into the watershed of the Pathfinder Dam.

Station work consisted of cultivating corn, transplanting tomato plants, thinning beets, plowing potato ground, and cutting potatoes.

Lionel Harris.

Umatilla

The maximum temperature for the week ending May 29 was 87° and the minimum was 40°. The average wind velocity was 8.1 miles per hour. There was a trace of precipitation.

The second lot of 150 turkeys in this year's tests was received. The 150 birds of April, May and June hatchings will be fed the station standard mash and scratch to determine the profitability of early, medium and late birds.

Station activities included irrigating; cultivating; weeding; and clipping the pasture plats which had outgrown the stock. The work of painting all the station buildings was started on Monday.

Umatilla, Cont'd

Mr. D. C. Smith, Division of Forage Crops & Diseases, stationed at Pullman, Washington, inspected the grass plantings in the blow area nursery west of the station. The rye seeded in November has made a splendid growth due to the favorable moisture in March, and is preventing further encroachment of sand on the station. The desert weeds have again established themselves between the rye planting and the station, due to protection from the cutting action of the sand by the rye.

H. K. Dean

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June 12 and 19, 1937

No. 13

Belle Fourche

The maximum temperature for the period June 1 to 15 was 81° with a minimum of 37°. There were 2.87 inches of precipitation.

Crop conditions are excellent. Late rains in May were in time for both the farm crops and the grass on the range. No irrigation will be needed until after July 1.

The storage in the Belle Fourche Reservoir at this time is approximately 70,000 acre-feet and water is coming in at the rate of 1,000 to 1,500 acre-feet per day.

Station activities consisted of planting potatoes and sorghum; cultivating corn and sugar beets and thinning beets; cleaning field roads; fencing; and painting station buildings.

Mr. S. H. Hastings visited the station May 5 to 9 in connection with the finishing the artesian well. For the past two weeks, Mr. R. D. Taylor, of the Cheyenne Horticultural Field Station, has been making special studies of root growth in the dry-land orchard. Comparison studies will be made in the irrigated orchard.

Beyer Aune.

Huntley

The maximum temperature for the 2-week period ending June 19 was 93° and the minimum 41°. There were 2.04 inches of precipitation.

The drought that has prevailed throughout most sections of the State for the past several months was broken by heavy general rains during the week. In the section west and north of Billings a heavy downpour of rain that occurred on the night of June 11 resulted in property damage in the City and in the farming section west of Billings to Park City estimated at \$2,000,000. Most of the city was covered with water to depths of from 1 to 4 feet, and the basements in nearly all residences and business blocks were flooded. The irrigation canals of the Billings Land & Irrigation Company and the Big Ditch Company were damaged by washouts that will cost, at least, \$100,000. and require 3 weeks to repair. The flood damage did not extend to any of the section east of Billings. Following the rains the project has shown much improvement. A very good crop of alfalfa is in prospect and other crops are making good growth. The rain was .

Huntley, Cont'd

beneficial, also, to ranges, although it came rather late to be of much benefit to dry-land crops. Stands of potatoes and beans will probably be damaged to some extent by the rains that followed a heavy irrigation.

Station activities during this period included irrigation of alfalfa and late planted crops, weeding, and thinning sugar beets.

Director F. B. Linfield and Professor Clyde McKee of the Montana Experiment Station were visitors on June 15.

Dan Hansen.

Newlands

The maximum temperature for the two-week period ending June 19 was 87° and the minimum was 38°. The average wind velocity was 4.66 miles per hour. There was .02 of an inch precipitation.

Station activities consisted of cutting the sweetclover on the "A" series of plots. The yield averaged slightly over a ton to the acre. The plans call for another crop of sweetclover to be cut from this series during July. In August the 29 plats in this series will be given various treatments and planted either to alfalfa, clover and grass pasture crops, or sweetclover to be used later for pasture. In addition to harvesting the crop from the "A" series, 27 acres in alfalfa are being cut. Other work included irrigating, cultivating corn and orchard, hoeing weeds, and making a dirt fill for a stack yard.

An experiment in feeding sweetclover hay is being conducted with the dairy cows. Twenty tons of yellow sweetclover was chopped and feeding commenced on June 8. At first there was no noticeable change in the amount of milk being produced. There was a greater waste in the hay fed. Soon the cows seemed to lose their appetites; this was accompanied by a slight decrease in the milk flow. A few days later the cows began to eat more and the milk flow again approached normal. The 20 tons will provide feed for about 7 weeks which should give ample time to determine the feeding value of chopped sweetclover as compared with chopped alfalfa.

The young turkeys have been placed on alfalfa pasture. They have been divided into 6 pens; one of which is a pen of cull birds. The same experiment as conducted last year on dry lot feeding is being repeated on pasture. At the end of the first 8 weeks the poults averaged about 2.8 pounds and had eaten about 6.2 pounds of feed per bird. The total death loss during the poult stage has been 3 percent.

E. W. Knight.

Prosser

The maximum temperature for the two-week period ending June 19 was 87° and the minimum was 43°. There were 10 rainy days and 4 clear days. The mean hourly wind velocity was 1.72 miles. There was .98 of an inch precipitation. The precipitation is .63 of an inch above normal so far this month. Wind of hurricane velocity struck the Yakima Valley

Prosser, Cont'd

June 7 uprooting shade trees, and damaging power and telephone lines. In some localities the wind damaged the cherries by whipping them off of the trees. The cherry crop on the Station was damaged more than 50% by the recent rains. Much of the first cutting of alfalfa hay was damaged, also, by the rain.

Potatoes were planted in the rotation plats on June 16 and 17, which is two weeks later than last year's planting. It is hoped that wireworm damage will be reduced by this later planting.

Visitors were: Messrs. Wanser, Deardorff, Kohler, and McDole, from the Regional Office, Soil Conservation Service, Spokane, Washington; and Mr. Rodnor, Project Manager, Soil Conservation Service, Ellensburg, Wash.

C. A. Larson.

Scotts Bluff

The maximum temperature for the two-week period ending June 19 was 95° and the minimum was 34°. The daily wind movement averaged 10.2 miles per hour. There was .08 of an inch precipitation. Corn was somewhat injured by the frost of last week but now is making satisfactory growth.

Storage water in the Pathfinder Reservoir as of June 18 was 630,460 acre-feet as compared with 485,620 acre-feet last year. Storage in the Guernsey Reservoir was 40,130 acre-feet on June 18.

One result of the recent rains was a vigorous and abundant growth of weeds. The major work at the station during the week consisted of cultivating, disking, and hoeing to control weeds. Corn and sugar beets have been cultivated and the borders and fence lines have been disked. All the sugar beet plots in field K, rotation 12, and part of the plots in field E have been thinned. About half of the beets in the tests being conducted by Mr. Nuckols have been thinned, also.

Other station activities consisted of irrigating the small grain crops, planting potatoes, cutting the first crop of alfalfa, and thinning beets. The thinning of beets was completed during the week at the station. Potatoes have been planted on the rotation plots and on a 4-acre tract for certification. Colorado Potato Beetles have appeared and are causing slight damage.

The major activity in the Valley at this time consists of thinning beets and planting late potatoes. As a result of the poor stands obtained from late-planted potatoes last year the late crop is being planted somewhat earlier this year. During the recent drought years farmers have adopted the practice of planting corn by the listing method, similar to the practice in use in dry land. This year, however, very poor stands were obtained from listing on irrigated land due to cold, wet weather.

Scotts Bluff, Cont'd

Dr. H. O. Werner was a station visitor during the week.

Lionel Harris.

Umatilla

The maximum temperature for the two-week period ending June 27 was 91° and the minimum was 45°. The wind velocity averaged 2.8 miles per hour. There was .87 of an inch precipitation.

Continuous rains for most of the ^{first} week ruined a large percentage of the first cutting of hay. In some instances it will be possible to salvage part of the crop, but in others it was molded and discolored beyond use. About one-third of the crop on the station was ^{lost}; the first time this has occurred in 25 years.

During the past four years occasional alfalfa plants in the vicinity have been found to carry alfalfa bacterial wilt. Dr. C. E. Owans, Plant Pathologist, Oregon Experiment Station, and Mr. E. R. Jackman, Farm Crops Extension Specialist, spent the day of the 21st on the station and in field trips through the vicinity for the purpose of correlating field and laboratory studies on the disease. Field B6 on the station, on which the stand has been deteriorating rapidly during the past 2 years, was found to be quite generally infected. So far as examined, the other fields do not have the disease.

In a variety test on a farm near Standfield, in cooperation with Mr. H. L. Westover some 3 years ago F. C. 19302, Turkestan did not show the disease. F.C. 22110 Ladak, F. C. 2204 Hardestan, and Grimm carried high percentages of wilt, although the stands have not materially depreciated as yet.

Mr. G. R. Hoerner, stationed at Corvallis on hop mildew by the Division of Drug & Related Plants, inspected hop fields in this vicinity enroute to Yakima Valley where the disease is reported to have gained considerable headway because of recent damp weather. No mildew was found locally.

As a part of a determination of the factors which have permitted normal growth of tomatoes under shade even though they were partially subject to leafhopper infestation, tomato plants having 2 main stems have been transplanted to the field; one of these stems being protected by a cloth covering, while the other is exposed to the normal light and temperature conditions. The exposed portions of the plants will be inoculated with curly-top and its transmission through the plant observed.

Thirty head of Hampshire ewes and their lambs have been secured to determine the carrying capacity of the mixed grasses, legume, and legume pasture plats. For the present the whole flock will be placed in the one-half acre plats and rotated as necessary to make the best use of the feed.

H. K. Dean.

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July, 1937

No. 14

Belle Fourche

The maximum temperature for the month was 102°, the minimum, 37°. The total precipitation was 3.40 inches against a station mean of 2.54 inches. The total precipitation for the year to June 30 was 8.44 and the station mean 8.65 inches. Most of the precipitation in June occurred from the 1st to the 15th. The first half of the month was relatively cold but normal, warm weather has since prevailed.

The first cutting alfalfa was irrigated once, but there was sufficient moisture for the smaller grains. Cutting of alfalfa was started on June 21 and completed by the end of the month. The average yield in the irrigated rotations was .74 ton per acre which is below the normal yield. Most of the thinning of sugar beets was completed, except those that emerged after the rains in the early part of June.

After swabbing the artesian well to clear the water, it came over the top at the rate of about 150 gallons per minute under high pressure. The flow at the present time is 140 gallons per minute and the pressure 50 pounds, with a temperature of 120°. The water which comes from the Minnelusa sand is very hard and must be treated before it can be used for domestic purposes. The total depth of the well is 4,405 feet.

The water supply in the Belle Fourche Reservoir was materially improved by the June rains as very little irrigation was necessary during the month.

The 22nd annual Farm Picnic will be held Saturday, June 17.

Beyer Aune.

Huntley

The maximum temperature for the week ending June 26 was 100° and the minimum, 39°. There was no precipitation.

Weather conditions were favorable for field work during this period and first cutting alfalfa is being harvested throughout the Valley. This crop is excellent in all sections and much above average, while other crops are in good condition. Sugar beets are being thinned and row crops cultivated.

Damage to crops by Mormon crickets is reported to be rather serious in the area south and west of Billings and the insects are at some points within 3 miles of the project. Control measures have been inadequate so far because of the widespread occurrence of these insects.

Dan Hansen.

Huntley, continued

The maximum temperature for the week ending July 3 was 103° with a minimum of 49°. Although beneficial showers were received in nearby localities there was only a trace of precipitation recorded at the station.

All crops grew well during the week but the response to the higher temperatures was more marked in the corn, bean and potato plantings which have been retarded by the relatively cool weather so far this season. The weather has facilitated hay making and on most farms the crop is going into storage in very fine condition. Where hay making operations have been completed attention is being given to the irrigation of pastures, meadows and grain crops, all of which are showing the need of water. The cultivation of row crops, delayed first by wet soil and later by alfalfa harvest, is now being pushed with a view to controlling the heavy weed growth. Other station activities included thinning late-planted beets.

Grasshoppers are reported to be causing some damage in scattered sections of the project, and some poison bait has been spread. In most cases the insects appear to have moved from recently harvested alfalfa fields to adjoining crop lands. Blister beetles are also present in considerable numbers, but as yet have confined their feeding to weeds and no crops have been injured. Mormon crickets have not yet made their appearance on project farms although they are throughout the adjacent foothills within a few miles of the irrigated lands.

A. E. Seamans.

Newlands

During the two-week period ending July 3 the maximum temperature was 99° and the minimum, 45°. The mean temperature was 71.6°. The average wind velocity was 3.45 miles per hour. There was .01 of an inch precipitation.

The first crop of hay at the station has been stacked. 93,760 pounds were harvested on 25.45 acres, or an average of 1.84 tons to the acre. The highest yields were from plots Y10 and C29; the former produced at the rate of 4,400 pounds per acre and the latter at 4,020 pounds. Plot C29 is included in an alfalfa variety test, growing the Grimm variety. The varieties being grown are Baltic, Cossack, Hairy Peruvian, Grimm and Common. The yield from the Grimm variety is in keeping with the former yields from these tests, as it has consistently produced more hay than the other varieties.

The turkeys have gained steadily in weight. The average for all groups was 4 pounds at 10 weeks of age. To produce this gain each poult has eaten a total of 9.3 pounds of feed.

Other station activities consisted of cultivating corn, irrigating all plots, hoeing weeds, and cleaning up about the premises.

E. W. Knight.

Prosser

During the two-week period ending July 3 the maximum temperature was 100° and the minimum was 41°. The total rainfall for June was 1.48 inches, which is the highest on record for the month of June at this station.

Station activities included cutting and weighing hay plats, the majority of which yielded at the rate of 3 tons per acre of ~~field~~-dried hay. Owing to the rain, the first cutting of hay was a week later than last year. Other activities included marking investigational work for Field Day which will be held July 9.

The top price of No. 1 potatoes declined \$4 per ton during this period. They are now selling for \$12 per ton, sacks furnished, f.o.b., car.

C. A. Larson

Scotts Bluff

During the two-week period ending June 26 the maximum temperature was 100° with a minimum of 20°. The daily wind movement averaged 6.6 miles per hour. The precipitation was .58 of an inch.

As the result of favorable rainfall good stands of alfalfa and sweet-clover have been obtained from spring seedings at the station and throughout the Valley. However, alfalfa wilt is prevalent in the older fields. During the past several years spring seedings of alfalfa and sweetclover frequently have failed. Consequently there is a noticeable shortage of sweetclover pasture for dairy cows, and the main station herd has been moved to the University pasture where feed is abundant.

Four carloads of poison bait have been used this year in Scotts Bluff County to combat the grasshoppers which are threatening crops throughout this area.

Station activities consisted of cleaning grounds around the station; irrigating sugar beets; miscellaneous weeding; spraying potatoes; cultivating row crops; and irrigating small grains for the second time. The first crop of alfalfa from the rotation plots and from the larger fields has been stacked. The cutting was lighter than usual, due to a poor start as a result of the drought during May, but was of good quality and in good condition, none being damaged by rain.

Mr. Paul Swanson, Station Dairy Expert, has been attending meetings of the American Dairy Science Association at Lincoln, Nebraska. Chancellor E. A. Burnett, Dean W. W. Burr, L. P. Seaton, of the University of Nebraska, and L. L. Zook, of North Platte, visited the station July 1.

Lionel Harris.

Yuma

The maximum temperature for the two-week period ending June 26 was 111°, with a minimum of 59°. There was no precipitation.

Yuma, continued

Temperatures have been about normal as compared with the 27 year means but are cooler than for the same period in 1935. Apparently such temperatures are beneficial to the cotton and alfalfa crops as present indications point to a very satisfactory set of alfalfa seed and most cotton fields, especially those planted early in the spring, have an unusually fine set of bolls.

Insect damage to cotton on the Yuma Project is being studied this season by the Bureau of Entomology in cooperation with the Arizona Extension Service and the Yuma Field Station. This work is under the immediate supervision of T. P. Cassidy, Bureau of Entomology, Tucson, Arizona. Dr. H. G. Johnston, Don W. Clancy and John M. Breazeale will be located at the station during the summer months. Dusting experiments will be conducted in the Yuma Valley below Somerton and at the station.

Station activities included the cutting of the fourth crop of alfalfa hay; cultivating cotton; planting corn; leveling and preparing grain sorghum plats for planting; cutting eucalyptus trees on the north line of the station; hoeing borders and roadways.

Shipments of cantaloups are moving from the project at the rate of approximately 50 carloads daily.

Station visitors were Messrs. T. P. Cassidy, H. G. Johnston and John M. Breazeale of the Bureau of Entomology; R. E. Blair of the Bureau of Agricultural Economics; R. E. Beckett of the Division of Cotton and Other Fiber Crops and Diseases; D. W. Bloodgood, Bureau of Agricultural Engineering, and Mr. Don W. Clancy of Pomona, California.

E. G. Noble.

M I S C E L L A N E O U S

"Irrigated Crop Rotations at the Huntley (Mont.) Field Station, 1912-35", By S. H. Hastings and Dan Hansen has recently been issued as Technical Bulletin No. 571 of the Department.

Mr. C. S. Scofield leaves Washington on the 22nd for a two-week trip to the central Northwest and will include the Scotts Bluff and Huntley Field Stations. With Mr. McLaughlin of the Division of Irrigation, Bureau of Agricultural Engineering, he will cover the Big Horn Basin of Wyoming and Montana for the purpose of observing the salinity and subsoil water conditions of that area. Mr. Hastings also leaves Washington on the 22nd for his annual visit to the Northwestern field stations of the Division and plans to return about August 24.

W E E K L Y R E P O R T S

Of the Division of
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Vol XXIX

July, 1937

No. 15

Huntley

A maximum temperature of 104° for the week ending July 10 was also the high point of the season to date. The minimum was 50°. Precipitation amounting to .39 of an inch was received in three scattered showers during the week. The cooling effect of the showers was more beneficial perhaps to crops than the actual amount of moisture received.

Irrigation of all crops continues to demand the attention of project farmers and all laterals are filled to capacity. Early wheat and barley fields are fully headed and this will probably be the last application of water they will need. The cultivation of row crops is nearing completion with water closely following the cultivator in many fields. Other work has consisted of harvesting pyrethrum and general irrigation.

Temperatures during the week ending July 17 have been generally lower than for the previous period with some nights unseasonably cool. The maximum temperature was 90° and the minimum, 44°. Precipitation amounted to .06 of an inch.

The weather has been favorable for all crops and all fields on the project which have been watered recently show a marked growth. Progress is especially noticeable in late bean and beet plantings. Winter wheat on the project, of which there is an increased acreage this year, is being harvested, and some fields of early spring wheat are turning. Oats continue green with numerous plantings showing some lodging of the crop.

On the station the cultivation of row crops was completed early in the week and the plats are now being irrigated. Watering continues to be the major operation in all fields under the ditch.

A delegation of 19 County Agents and Extension Leaders spent Thursday, July 15, at the station inspecting the experimental work.

A. E. Seamans.

Newlands

During the 2-week period ending July 17 a maximum temperature of 97° occurred on July 4, and a minimum of 46° on July 14. The mean temperature was 73.7°. The average wind velocity was 2.93 miles per hour. There was

Newlands, Cont'd

.20 of an inch precipitation.

Fair yields of grain and hay on the project are being harvested. The price of wheat has fallen from \$45 to \$35 per ton, with lower prices expected. Barley is expected to sell around \$30 per ton. At present little of this crop is reaching the local market. Present conditions indicate a relatively high price for hay, ranging around \$9 to \$10 in the stack for alfalfa. All factors considered the farmers of this project should enjoy a rather fair year insofar as cash returns are concerned.

Other station activities consisted of hoeing weeds, cultivating corn, and irrigating.

E. W. Knight.

Prosser

The temperatures for the two-week period ending July 17 were as follows: maximum, 98°; minimum, 43°; mean, 71.1°. Station activities included preparing investigational work for the Annual Field Day held July 9, and routine irrigation and cultivation.

The Seventeenth Annual Field Day was attended by 572 persons. This was the largest group ever entertained at this Station on a Field Day. The group was divided into several parties. Each person joined the party which visited the experimental work he was most interested in. Representatives from the Departments of Agronomy and Horticulture from Washington State College at Pullman, Washington, were present to help explain the experimental program.

Market prices: New No. 1 hay in the stack, \$8 to \$12 per ton; U. S. No. 1 potatoes, sacks furnished, \$14 to \$16 per ton, f.o.b. car; soft white wheat, \$1.05 per bushel; hops, 25 to 28 cents per pound; and butterfat, 33 cents per pound.

C. A. Larson.

Scotts Bluff

The maximum temperature for the two-week period ending July 17 was 100°, and the minimum, 43°. The daily wind movement averaged 7 miles per hour. There was .25 of an inch precipitation.

Crops have been growing rapidly in the prevailing high temperatures, drawing heavily on the soil moisture, which has necessitated a wide use of irrigation water. Consequently, irrigating has been the major activity during the week at the station. The small grains, which were in the milk stage have been irrigated for the third time this season. Corn and bean crops are in good condition, but have utilized most of the available soil moisture and are in need of irrigation water, which is being supplied to them as rapidly as possible.

Scotts Bluff, Cont'd

In general, stands of late potatoes are good. However, it has been necessary to spray for control of the Colorado Potato Beetle in many fields. Sugar beets and beans have been weeded.

Grasshoppers have damaged corn, grain, and young alfalfa in many fields. One of the largest campaigns against them in years has been in progress this season. The first allotment of poison has been spread, and efforts have been exerted to obtain additional poison which, as it appears now, is badly needed.

Cool weather prevailed during the week ending July 17 in western Nebraska. The small grains are ripening; and cutting has commenced in some sections. The small grain crops, which have not been seriously affected by rust or drought, should return normal yields. The cool weather has been especially favorable for both early and late potatoes, which have a better growth at this time than they have had in years. Damage from the psyllid insect promises to be light this year. However, as a result of past injury caused by this insect, more spraying to prevent damage has been practiced this year, particularly on early potatoes.

Station activities included irrigating, cultivating and weeding sugar beets, corn, beans and potatoes; spreading poison bait to control grasshoppers. This irrigation is the second for the sugar beet and bean crop, and the first for corn and potatoes.

Station visitors included D. J. Roach and A. C. Maxon, of the Great Western Sugar Co., John T. Caine III, of the Chicago Stockyards, J. J. Thompson of the Marshall Canning Co, and Dr. H. M. Tysdal of the Division of Forage Crops and Diseases.

Lionel Harris.

Umatilla

For the three-week period ending July 18 the weather observations are as follows:

<u>Week ending</u>	<u>Maximum temp.</u>	<u>Minimum temp.</u>	<u>Precipitation</u>	<u>Wind velocity m.p.h.</u>
July 4	104°	56°	.18 inch	4.7
July 11	98°	53°	--	4.3
July 18	101°	57°	--	5.7

ent

During the week of July 5 to 11 the superintendent/joined other superintendents of Oregon Stations on a tour of all the field stations of eastern Oregon. The party of 14, including the director and vice-director, visited the Hood River, Moro, Squaw Butte, Burns, Union, Pendleton, and Umatilla Stations. The trip proved very valuable as it gave the superintendents an opportunity to observe methods and the experimental work under way, especially since several of the men had not previously been on many of the stations..

Station activities included finishing the first crop of hay, weeding and irrigating. The wind movement was somewhat higher than usual but no serious damage was done to crops, and growing conditions were generally favorable. Considerable time was spent selfing the curly-top resistant

Umatilla, Cont'd.

squash for pure-line selections.

Mr. B. F. Dana spent the week beginning July 5 at the station making stand counts and disease observations on the curly-top plantings. Tomatoes under lath and cloth shelters are making splendid growth and indicate large crops; while the exposed plants are severely affected. Other visitors were Eubanks Carsner and A. M. Murphy of the Sugar Plant Division. Dr. H. M. Tysdal, Forage Crop Division stationed at Lincoln, Nebraska, visited the station while on a West coast trip. He was particularly interested in observing alfalfa wilt under local conditions.

H. K. Dean.

Yuma

The maximum temperature for the two-week period ending July 10 was 115° and the minimum, 69°. There was .58 of an inch precipitation. Ten days were clear, 3 partly cloudy and one cloudy.

The period of high temperatures and high humidity which occurred during the first week in July was moderated with more pleasant weather during the remainder of the 2-week period. On June 27 a precipitation of .44 of an inch was recorded as a result of two rainstorms, a most unusual occurrence during this period for this section.

A recent development in the Southwest during the past two summers has been the installation of home-made coolers for homes which vary from very crudely constructed excelsior pads with an ordinary electric fan installed in a window of the home to elaborate evaporator boxes made of excelsior, glass wool, coke, cinders or other porous materials, large blower type fans, and outside installation with connecting air ducts to the dwellings. As was the case with the first home-made radio sets, each individual claims his own outfit is superior to all others. In general, these coolers have aided materially in making living conditions more comfortable during the hot months. During periods of hot, humid weather their efficiency is greatly reduced but can be overcome somewhat with coolers of large capacity by circulating more air.

The 1937 cantaloup season on the project has about closed. Approximately 1,300 cars have been shipped from about 2,500 acres. Prices have been holding close to \$1.25 per crate.

The season's alfalfa seed harvest has begun with first threshing reports indicating better than normal yields. One alfalfa grower in the Welton, Ariz., district reports 3,260 pounds from a 2-1/2 acre plat on his farm. Cotton on the project continues to show indications of a better than normal yield for this time of the year. Some shedding was in evidence during the humid period last week.

Station activities included the planting of 9 grain sorghum varieties; planting corn and grain sorghums in the rotation test; cutting and threshing sweetclover; cultivating and hoeing cotton; general irrigating.

E. G. Noble.

W E E K L Y R E P O R T S

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Belle Fourche

Report for July

The maximum temperature for the month of July was 107° and the minimum was 52°. Total precipitation for the month was 5.79 inches. The average precipitation for July is 2.27 inches. The heaviest rain occurred on July 14 when 3.24 inches were recorded at this station. At Vale, 10 miles south of Newell, 6 inches were recorded which did some damage to crops and washed out the south canal in places. No irrigation was necessary the last half of the month.

The 22nd Annual Farm Picnic was held Saturday, July 17. A rain of 1.20 inches occurred during the night of July 16, tending to lower the attendance to some extent. Approximately 1,000 cars were checked in during the day and evening. During the events of the day, which followed the usual program, Governor Jenson, Mr. Gordon and Mr. A. M. Eberle, Extension Director, were visitors.

Station activities consisted of cultivating and hoeing beets, corn and potatoes; irrigating second cutting alfalfa and pastures; preparing for the farm picnic; harvesting grain and second cutting alfalfa. The second cutting alfalfa yields were below average due to damage by grasshoppers. Some poisoning was done with practically no visible results.

On July 30 and 31 a 4-H Club Judging School was held at the station. About 70 boys and girls from Butte, Lawrence, Meade, and Harding Counties, together with their County Agents and Club Leaders, were in attendance. Mr. I. B. Johnson, Extension Animal Husbandman and Vice-Director, and Miss Agnes Hanson, Assistant 4-H Club Leader, State College, Brookings, South Dakota, were here for the two day judging school.

Mr. S. H. Hastings visited the station July 28 and 29.

Beyer Aune.

Huntley

The maximum temperature for the week ending July 24 was 101° and the minimum, 52°. There was no precipitation.

Huntley, Cont'd

Small grains which have matured rapidly because of climbing temperatures and lack of rain are now being harvested on the Project and adjoining benchlands. Although some of the early-cut grain has been threshed no yields have been reported. The yields of the second crop of alfalfa which is now being harvested appear to be very good and the quality of the hay going into the stacks is excellent.

Irrigating of row crops continues and the demand for water is heavy. Despite the wet soil most crops look wilted during the warmest part of the day. However, beans and potatoes are making an especially heavy growth.

A group of 19 farmers from the Sun River Project in Northern Montana visited the station on the 20th under the guidance of Dan Thurber and Claude Windecker of the Extension Service. Special interest was taken in the rotation experiments and the irrigated pastures.

A. E. Seamans.

The maximum temperature for the week ending July 31 was 98° and the minimum, 56°. There was no precipitation.

Weather conditions continued favorable during this period and crops made excellent growth and continued recovery over conditions that existed earlier in the season.

Station work included irrigation of row crops, and harvest of grains and second cutting alfalfa. Both of these crops are returning higher than average yields.

Mr. Scofield and Mr. Hastings arrived at the station on July 30 and on July 31 held a conference concerning cooperative station work with the following members of the Montana Experiment Station staff: Dean F. B. Linfield, Director Clyde McKee, A. H. Post, H. E. Morris, Edmund Burke, O. W. Munson, and M. Afanasiev.

Dan Hansen.

Newlands

The maximum temperature for the two-week period ending July 31 was 98° and the minimum, 46°. The mean temperature was 74.2°. The average wind velocity was 2.75 miles per hour. There was .32 of an inch precipitation.

Sweetclover was harvested from the "A" series and from D4. The "A" series averaged 1,800 pounds per acre for the second crop harvested. The balance of the fall seeded wheat and rye and spring sown barley and oats was threshed. The highest yields of winter wheat were 2,300

Newlands, Cont'd

pounds to the acre. The largest yield of barley was about 1,930 pounds; winter rye, 2,440 pounds; and oats, 1,180 pounds. In addition to these harvesting operations weeds have been hoed, corn cultivated, and one general irrigation given.

The "A" series of plots will be lightly disked to prepare a seed bed for the seeding of alfalfa, grasses, and clovers. One plot will be seeded to Strawberry clover, three to mixed grasses, three to sweetclover, and the balance of the 29 plots to alfalfa. The plans call for pasturing the clovers and grasses and the three plots of alfalfa. The greater part of the remaining plots will receive various treatments, but several will remain untreated to act as check plots.

Little progress is being made in controlling mastitis in the dairy herd. Recent tests made of the milk of young heifers showed reactions in three cases. All cases, as they develop, are placed in the infected group and the worst are sold to the butcher. The present plan calls for the use of an autogenous vaccine and the replacement of the disposed reactors with other individuals purchased after they have passed the tests required.

The turkey experiment continues as scheduled. The birds, at 14 weeks, averaged about 7 pounds, and had eaten a total of about 12 pounds of feed per bird.

E. W. Knight.

Prosser

During the two-week period ending July 31 the maximum temperature was 103°, the minimum, 43°, and the precipitation, .37 of an inch. The supply of water in the Reservoir of the Reclamation Service is still high, being more than 800,000 acre-feet. A severe electric storm occurred July 27 striking and igniting several hay stacks and barns.

Station activities included the harvesting of second cutting of alfalfa hay and wheat. The yield of alfalfa hay was slightly less than two tons per acre. This was partially due to the short growing period of only four weeks. All of the wheat on rotation plots was bound on July 19.

The station cannery, operated by the Bureau of Chemistry and Soils Frozen Pack Laboratory, has been busy processing vegetables and fruits. The vegetables experimented with so far include broccoli, cauliflower, cabbage, beans, corn, squash, lettuce, carrots and kohl-rabi. The fruits worked with include strawberries, apricots, plums, peaches, apples and cherries.

Prosser, Cont'd

The price of alfalfa hay ranges from \$8 to \$12 per ton in the stack, depending on the quality. The first cutting of hay was of poor quality in many cases because of damage by rain. Price of U.S.No.1 potatoes in sacks ranges from \$10 to \$18 per ton. The majority of the early potatoes produced in the Kennewick-Prosser District have been shipped to the Middle West. The price of hops has declined with the outlook of a good crop; the present price ranging from 10 to 18 cents per pound, baled, f.o.b. car.

C. A. Larson.

Scotts Bluff

The maximum temperature for the two-week period ending July 31 was 96° and the minimum, 51°. The average daily wind movement was 5.6 miles per hour. There was .61 of an inch precipitation.

Storage in the Pathfinder Dam as of August 3 was 446,190 acre-feet. Inflow was 903 sec. ft. and outflow was 5,016 sec. ft.

Mr. T. W. Parry, Manager of the Pathfinder Irrigation District, announced that water users under the Government canal would receive 1.50 acre-feet of water per acre as compared with 1.25 acre-feet last year. The precipitation this year, while not unusually high, has occurred in such manner as to be of great benefit for crop growth. Up to this time, few crops have suffered because of a shortage of soil moisture. Alfalfa and sweetclover pastures are the chief exceptions to this condition.

Crops have made good growth during the week, as the weather has been very favorable for corn, potatoes, sugar beets and beans. Cool night temperatures have been especially favorable for the late potato crop, but somewhat unfavorable for tomatoes and sweet corn. The Oto Food Products Company has 300 acres of tomatoes and 800 acres of sweet corn under contract for canning purposes this fall. Both crops are in a satisfactory condition at this time and should return good yields if normal weather continues.

Station activities during the week included cutting wheat in field K; stacking the second crop of alfalfa hay; weeding; and irrigating beets and potatoes on the rotation plots. The second irrigation of corn was applied during the week. Additional activities included cutting the second crop of alfalfa in field K; cultivating corn and potatoes; cutting and shocking the small grains, except wheat.

The average yield of the first cutting of alfalfa from the rotation plots was 1.45 tons per acre. The yield varied from .72 tons in rotation 48 (first year's growth) to 2.52 tons in rotation 71 (third year's growth). The yields from the first and second crops of alfalfa from the various rotations have been reported.

Scotts Bluff, Cont'd

Messrs. C. S. Scofield and S. H. Hastings visited the station for their annual inspection of experimental work.

Lionel Harris.

Yuma

The maximum temperature for the two-week period ending July 31 was 113° and the minimum was 71°. The minimum temperature on July 26 was 86° which signifies a very hot night as the temperature does not begin to drop below 100° until long after midnight. The total precipitation for the period was .39 of an inch which occurred in two local thunderstorms on the 23rd and 29th.

With the exception of the high temperatures on July 24 and 25 weather conditions in general have been about normal. The cotton crop has been holding on the squares and small bolls except during the high temperature periods. The first bale of cotton from the Fred Blohm Ranch in the Yuma Valley was ginned last week. Cotton picking in general will not start until late in August. In a large number of fields adjacent to alfalfa seed lands there has been found an increasing number of hemipterous bugs. The damage from this infestation will be apparent to the "middle crop" on the cotton plants.

The alfalfa seed harvest on the project continues under way with some disruption from scattered rains. The light rain recorded at the station on the 29th amounted to .47 of an inch in the upper Yuma Valley. Several large fields in this area reported a heavy crop damage to their alfalfa seed. Local seed prices at the warehouses are around 16 cents per pound.

Construction reports on the All-American Canal show the work to be approximately 70 percent completed. The Colorado River at Imperial Dam has been diverted through the finished spillway sections on the Arizona side and work on the coffer dams in the center of the river is now in progress. Many of the sub-contractors on various jobs at the dam have laid off their men during the months of July and August.

Station work performed during the 2-week period has included the planting of grain sorghums; cultivating and hoeing grain sorghums and corn; putting up the fifth crop of alfalfa hay from the rotations; harvesting alfalfa seed; and general irrigating and hoeing.

E. G. Noble.

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August 7 and 14, 1937

No. 17

Huntley

The maximum temperature for the week ending August 7 was 100° and the minimum was 40°. There was .02 of an inch precipitation.

Following a period of 10 days of cool weather, higher temperatures occurred during the latter part of the week. Weather conditions were favorable throughout the period for the harvest of second crop alfalfa and grains which is well under way on all parts of the project. At the station the harvest of alfalfa was completed and the harvest of grains on the irrigated plats was begun. Other station work included irrigation of cultivated crops and alfalfa and weeding.

Mr. Scofield and Mr. Hastings were at the station from July 30 until August 3. Mr. Afanasiev spent the entire week at the station making a disease survey of crops in the rotation plats.

Dan Hansen.

Newlands

During the three-week period ending August 21 the maximum temperature was 99° with a minimum of 44°. The mean temperature was 67.9°. The average wind velocity was 2.56 miles per hour. There was no precipitation.

Second crop haying has been completed on the project farms. Normal yields were reported as being harvested. The average yield for the entire second cutting alfalfa at the station was 1.67 tons per acre, which with the 1.83 tons per acre average of first crop, totals 3.5 tons per acre for the hay produced in two cuttings this year. It is expected that the third crop will produce 1.5 tons or more to the acre. It is quite possible that the yield of first and second crop hay on the project as a whole has been a little below normal. Some damage was done to alfalfa stands last winter by severe freezing weather. However, the only variety damaged at the station was plantings of Hairy Peruvian. Late irrigations on October 15 and 16 had been given all alfalfa areas including the Hairy Peruvian. Evidently this shallow-rooted alfalfa cannot stand long-continued cold with temperatures 15 degrees or more below zero, even if late fall irrigations are being practiced.

Work at the station has consisted of further preparation of the "A" series for planting. The entire area of 25 acres was lightly

Newlands, Cont'd

disked, new border levees constructed and some 80 tons of manure spread on the last six plots. After preparing the seed bed, the entire area was irrigated. As soon as it has dried sufficiently the high spots will be smoothed off and seeding commenced.

The work of combatting noxious weeds continues. At the present time the greatest pest is sand burrs. Some progress is being made, but it is rather slow and costly work. This weed seems to be widely distributed about the project especially in the more sandy areas where grain crops are being grown or the alfalfa stands are thin or no crop is grown. There is a question whether individual effort will be of much help unless the irrigation canals can be cleaned of such pests.

A rather interesting planting of strawberry clover and Brome grass has been made at the station. An area approximating one-half acre has been sown to these two crops. The interesting part is the heretofore unproductiveness of the soil. Analyses show a low salinity, but a rather high alkalinity of the soil. Conductances of the soil samples taken average about 54 and an average PH reading of 8.3. This area borders a raised irrigation lateral which results in partial seepage.

The turkey poultts have reached 18 weeks in age. The average weight of the balanced ration group of toms is 12 lbs. and of hens, 8.8 lbs. This group has produced each pound of gain with a consumption of 2.9 pounds of mash.

Mastitis work continues with the dairy cows. The latest method of attacking the problem is an attempt to increase resistance in heifers by the use of vaccines and a trial at combatting streptococcus infection in the worst reactors by the use of sulfoanalamide. Another item of interest in connection with the dairy herd is the decision of the State Agricultural Station to gradually change the station herd into one of purebred Holsteins. The first step has been taken. Three head of heifers have been purchased. These animals are due to freshen within two months. As they were selected primarily on a basis of production rather than type, they were obtained from a high producing Holstein herd with the greatest consideration being given the recorded production of their dams and grand dams.

Station visitors during this period have been Mr. F. B. Headley, Mr. L. E. Cline, Director S. B. Doten of the State Station, and Mr. S. H. Hastings.

E. W. Knight.

Prosser

The maximum temperature for the two-week period ending Aug. 14 was 99°, minimum, 41°.

Wheat grown on the rotation plats was threshed August 2. The average yield for all plats was 47.7 bushels per acre with a maximum yield of 72.2 bushels per acre on rotation 70. This plat was partially fallowed during the past two years on account of the poor stand of sugar beets and corn, respectively. The lowest yield, 20 bushels per acre, was obtained from rotation 4, a continuous wheat plat. Two alfalfa plats having wheat as a nurse crop had to be reseeded because of the heavy wheat crop. Other station activities included hoeing sugar beets, cultivating potatoes, and routine irrigation.

During this period 419 carloads of potatoes were shipped from the Yakima Valley. Last year during the same period 765 carloads were shipped.

The top price of No. 1 potatoes and sacks f.o.b. car declined \$4 per ton during the two-week period and is now \$12 per ton. The price of hay in the stack ranges from \$8 to \$12 per ton. The prices of cereal grains are as follows: soft white wheat, 88 cents per bu.; barley, \$25 per ton; oats, \$23 per ton; The price of hops ranges from 13 to 20 cents per pound, baled f.o.b. car. The price of butterfat is 32 cents per pound.

Mr. S. H. Hastings visited the station August 6 and 7.

Carl A. Larson.

Scotts Bluff

During the two-week period ending August 14 the maximum temperature was 101° and the minimum, 52°. The daily wind movement averaged 5.5 miles an hour. There was no precipitation.

Favorable weather conditions prevailed during this period and all crops made very good growth. Most of the small grain crops in the valley have been threshed, returning, in general, large yields.

The first vegetable tour ever held in the North Platte Valley was conducted Thursday, August 5. The tour, which is to be an annual event, has been inaugurated in the interest of the canning industry which was established here this season. The itinerary included a visit to several commercial fields representing various conditions and varieties of tomatoes, beans, and sweetcorn, with the final stop at the Experiment Station, where an examination of numerous varieties of corn and tomatoes was made.

Station activities included scattering grasshopper bait, irrigating silage corn fields, irrigating and weeding corn, beets and

Scotts Bluff, Cont'd

potatoes on the rotation plots, roguing certified potato fields, and making preparations for the Annual Field Day which was held at the station during the afternoon of Friday, August 13.

The Annual Field Day program included an examination of experimental work, 4-H Club judging contests, and discussions of the various projects by Lionel Harris, S. B. Nuckols, H. O. Werner, L. A. Clark, and Paul Swenson. A large crowd of farmers attended and considerable interest was expressed in the experimental work being conducted with the various crops.

Storage water in the Pathfinder Dam on August 7 was 411,280 acre-feet. Inflow, 553,000 sec. ft. and outflow, 5,020 sec. ft.

Lionel Harris

Yuma

During the two-week period ending August 15 the maximum temperature was 112°, minimum, 64°, mean wind velocity, 1.5 miles per hour, and precipitation, 0.

Intermittent periods of high humidity have continued for the past few weeks with an occasional cool night.

Cotton on the project and on the station continues to show much evidence of earlier-than-normal maturity. Many of the plats on the rotations have open bolls on most of the middle crop of the plants. The first report of the four operating gins on the project shows 75 bales turned out. The ginning rate is limited to the supply of available cotton pickers, as much of the early planted crop is ready for picking.

Alfalfa seed harvesting continues with most of the crop now in the recleaning and warehouse establishments. Seed prices remain around .15 per pound.

Station work performed during the period included cultivation of corn and grain sorghum plats; hoeing alleys and roadways; repairing concrete walls on the cotton gin press pit; roguing grass nurseries; and general irrigating.

E. G. Noble.

M I S C E L L A N E O U S

Dr. V. P. Sokoloff, Junior Agronomist at the Rubidoux Laboratory, resigned August 13, 1937, to accept a position with the University of California.

W E E K L Y R E P O R T S

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August 21, 28 and Sept. 4, 1937

No. 18

Huntley

The maximum temperature for the week ending Aug. 21 was 99° and the minimum was 43°. There was no precipitation.

Hot, dry weather prevailed during this period and there was continued heavy demand for irrigation water. The flow of water in the river has dropped to somewhat below normal for this season of the year and it is possible to divert only slightly more than 450 sec.ft. into the Huntley Canal. This is about 100 feet below capacity. Delivery of water to farmers is, therefore, rather restricted although the shortage is not acute since irrigation of grains is completed for the season and alfalfa and sugar beets are the only main crops that require irrigation.

The survey for an electric power line to extend from Billings to Custer, and to cover the entire Huntley Project, is nearly completed and it is expected that construction of the line will begin on August 25 and be completed by November 1.

Station work during the period included irrigation of alfalfa, beets and potatoes and preparation of fall seeded plots in the dry land fields.

For the week ending September 4 the maximum temperature was 94° and the minimum, 40°. There was .06 of an inch precipitation.

The total precipitation for August amounted to only .09 of an inch which is the lowest on record at the station. The normal for this month, over a 28-year period, is .94 of an inch. Because of this extended drouth there was a heavy, continuous demand for irrigation water. While the flow in the river is low the supply is adequate to meet requirements.

Construction of the R.E.A. power line to cover the Huntley Project and other sections of the Yellowstone Valley from Billings to Custer was started during the week.

Station activities included threshing of irrigated small grains, and the irrigation of beets and alfalfa. The harvest of beans is under way on the project and good yields are in prospect.

A station beet tour for growers of this area is being planned for September 9 and 10.

Station visitors during the week included Dr. G. H. Coons and Mr. S. B. Nuckols of the Division of Sugar Plant Investigations, Messrs. J.R. Mason and Charles Mann of the Great Western Sugar Company, and Dr. Mitrofan Afanasiev of the Montana Experiment Station.

Dan Hansen.

Newlands

The maximum temperature for the two-week period ending Sept. 4 was 94°, the minimum, 41°. The mean temperature was 66.3°. The average wind velocity was 2.92 miles per hour. There was no precipitation. Normal climatic conditions have been recorded which assure normal yields of third crop hay.

The area known as the "A" series has been seeded. One plot has been planted to Strawberry clover, 3 to mixed grasses, 3 to sweetclover, and 21 to alfalfa. At the present time a fine stand is appearing over the entire area. In addition to this seeding plots B14, 32, 37 and C22 were seeded to alfalfa. Plots B25 and 28 were seeded to sweetclover, and C2 to 6 seeded to winter rye and sweetclover. Plots Y19 to 23, inclusive, and C32, 33, 34, 36, 37 and 38 have been prepared for seeding of winter grain.

The hog pasturing experiment is about completed. Some digestive troubles arose with a few hogs during the past two weeks. The trouble has been attributed to the heavy feeding of recently harvested barley.

Station visitors during this period were Mr. F. B. Headley of the State Agricultural Experiment Station and Mr. E. A. Hollowell of the Division of Forage Crops and Diseases.

E. W. Knight.

Prosser

Temperatures for the two-week period ending August 28 were as follows: maximum 95°, minimum 40°, greatest daily range 41°. The precipitation amounted to .04 of an inch.

Station activities during this period included harvesting sweetclover seed, threshing oats and wheat, harvesting pears, routine irrigation, and cultivation of crops in the rotations.

The Planning Council for the State of Washington met at the station on August 23 to discuss kinds of crops to be grown on the Roza Project.

U.S. No. 1 potatoes have advanced \$4 per ton and are now \$17 per ton, sacks furnished, f.o.b. car. Hop picking began the latter part of the two-week period and a labor shortage has developed. The top price for hops is now 15 cents per pound baled f.o.b. car.

C. A. Larson.

Scotts Bluff

During the three-week period ending September 4 the maximum temperature was 104° with a minimum of 52°. The daily wind movement averaged 5.85 miles an hour. There was .91 of an inch precipitation.

In order to increase the storage water in Lake Minatare, water in laterals in the vicinity of the station was shut off for four days. This action was required to permit delivery of the allotted amount of water to farmers who depend upon Lake Minatare for their needs. The Pathfinder Irrigation Company announced recently that 1.60 acre-feet of water per acre will be delivered to farmers under the Government canals---an increase of .1 of an acre-foot over the pre-season allotment.

Scotts Bluff, Cont'd

Station activities during the week included threshing the small grain crops, weeding beets, irrigating beets, potatoes and alfalfa on the rotation plots, planting lawn on the station grounds, and hauling manure from the dairy corrals. A cement pit for holding the manure from the dairy barn has been constructed in order to better conserve the liquid portion of the manure, and also to keep the corrals more sanitary. Fall seedings made during the week included alfalfa in rotations 44 and 48 and winter wheat in rotation 5. The plots were irrigated directly after seeding. Additional activities included cutting alfalfa on the rotation plots and filling the silos.

The Oto Food Products Company is now canning tomatoes. This Company has about completed processing corn and beans.

The Annual Potato Field Day was held August 17. Formerly this event included an inspection of potato fields throughout the Valley. However, this year the entire program was conducted at the station. An examination of field experimental work was made during the morning, and during the afternoon a meeting was held at which several speakers discussed various problems relating to the production and marketing of potatoes.

On Monday, August 30, a sugar beet tour was held in the Valley. During the morning the members of the tour assembled at the station and examined the various experimental projects. The afternoon was spent in viewing general sugar beet conditions throughout the Valley and certain variety and manure tests that are being conducted in the Holly Sugar Company territory in Wyoming. Most of the members of the tour were research workers from Western Nebraska and Colorado and officials of the Great Western, Holly, and Utah-Idaho Sugar Companies. Among those attending were D. J. Roach, S. H. McCorry, H. W. Dahlberg, G. W. Deming, J. O. Gaskill, Tom Bracken, Jack A. Bryan, and Dr. G. H. Coons.

Grain yields from the rotation plots have been compiled. The average yield of oats for all rotations in Field K was 39.5 bushels per acre, with a maximum of 62.1 bushels from rotation 65 and a minimum of 13.6 bushels from continuously cropped plot 1. Wheat yields ranged from a minimum of 6.8 bushels from continuously cropped plot 3 to a maximum of 21.6 bushels per acre from rotation 48, with a mean yield of 12.4 bushels per acre. Barley yielded 72.6 bushels per acre from rotation 121.

Mr. S. H. Hastings and Dean W. W. Burr visited the station on the 21st and 22nd of August. Mr. Buckley, auditor for the Univ. of Nebraska made his regular annual audit of the station books the 25th.

Lionel Harris.

UmatillaMonth of August

Growing conditions were very favorable during the month of August. The maximum temperature was 101°, minimum, 42°, precipitation, .08 inch. The average wind velocity was 4.2 miles per hour and the average evaporation .308 inch per day.

The average weights of turkeys on Aug. 18 were as follows: April hatched toms 11.2 lbs, hens 8.6 lbs; May hatched toms 6.7 lbs, hens 5.3 lbs; June hatched toms and hens 3.0 lbs. The turkeys are all being fed alike this year on the station standard mash, grain and alfalfa pasture.

Umatilla, Cont'd

Dr. J. R. Haag, Nutrition Chemist, Oregon Experiment Station, spent Aug. 28 at the Station making blood phosphorus determinations on the dairy cows. The blood phosphorus content has been considerably below normal in the past while the cows were on hay or hay and grain, with little difference between the groups, but was even somewhat lower when the cows were on sweetclover pasture.

Mr. B. F. Dana spent some time at the Station making curly-top counts and roguing the bean crosses. A number of crosses between previous crosses of field beans and green bean varieties are showing high percentages of resistance this year and promise to produce strains for the green bean trade and cannery purposes. The standard varieties of green beans are all 100% susceptible.

The Field Day held on Aug. 14 was largely given over to the dairy industry and related work. The speakers were R. S. Metsker, State Department of Agriculture, G. A. Brown, Manager, Interstate Creameries Coop., and Dr. I. R. Jones, Dairy Husbandman, Oregon Experiment Station. On the following Saturday the annual tour of the Eastern Oregon Turkey Growers met at the station. Herbert Byers, Manager, Northwest Turkey Growers, J. C. Leedy, Manager, Oregon Turkey Growers and N. L. Bennion, Extension Poultryman, were speakers. A group of commercial tomato growers from Milton-Freewater in company with the Assistant County Agent of that District spent a half day on the station viewing the curly-top investigations.

Mr. S. H. Hastings spent Aug. 9 and 10 at the station.

H. K. Dean

Yuma

The maximum temperature for the two-week period ending Aug. 28 was 109°, minimum, 74°, precipitation, 0. Slightly lower temperatures prevailed during the latter part of the month. The mean temperature for the month of August was about three degrees above normal.

Cotton picking and ginning on the project continue at a rapid pace with more pickers being available than earlier predictions indicated. The five operating gins have turned out 1,726 bales to date. The current picking price is \$1.00 per cwt.

Land is being prepared for fall planting of lettuce. No report as to the acreage of this crop has been made but presumably it will be about 7,000 acres.

The U.S.G.S. report on the Colorado River for the month of Aug. shows the flow of the river into Lake Mead to be 431,000 as compared with 585,000 ac.ft. for August 1936. The discharge of the river below Boulder Dam is 639,560 ac.ft. with an estimated water storage of 15,396,000 ac.ft.

Station work has included the roguing of grain sorghum plats; hoeing grass along ditches; repairing the station cotton gin; general cultivating and hoeing.

Station visitors included Mr. D.W. Bloodgood, Pomona, Calif.; Mr. R.E. Beckett, Sacaton, Ariz.; Mr. T.P. Cassidy, Tucson, Ariz.; and Mr. T.C. Barber, Mesa, Calif.

E. G. Noble.

W E E K L Y R E P O R T S

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(Not for publication without the prior consent of this Division)

Vol. XXXIX

September 11 & 18, 1937

No. 19

Huntley

During the two-week period ending September 18 the maximum temperature was 91° and the minimum, 37°. There was .21 of an inch precipitation.

Weather continued unusually warm and dry during the period. All late crops are fully matured and most of the acreage of beans and corn, as well as third crop alfalfa, on the project has been harvested with better than average yields.

Local prices of farm commodities are as follows: Great Northern Beans \$2.75 and \$3 per cwt; Contract Garden Seed Beans \$3.50 per cwt; Feed Grains (barley and oats) \$1.25 per cwt; and alfalfa hay \$6 to \$8 per ton.

A beet growers tour of the station, in cooperation with the Montana State Experiment Station and the Great Western Sugar Company, was held on Sept. 9 and 10. Farmers from the eastern section of the Valley attended the tour on the 9th and from the western part on the 10th. A total of about 250 growers attended these meetings. The program included an inspection of the plots in the irrigated rotation fields where the results of these rotations were presented by members of the station staff. Following this a meeting was held in project hall at which timely matters of interest to growers were discussed by members of the state station staff, the local county agent, members of the agricultural staff of the Sugar Company and the President of the Montana-Wyoming Beet Growers Association.

Station visitors included Director Clyde McKee, Professors A. H. Post and H. E. Morris, and Dr. Mitrofan Afanasiev of the Montana State Station.

Dan Hansen

Newlands

The maximum temperature for the two-week period ending September 18 was 93° with a minimum of 39°. The mean temperature was 67°. The average wind velocity was 1.81 miles per hour. There was no precipitation.

The continued warm fall weather has been favorable for an average cutting of third crop alfalfa on project farms. The present price of hay is \$8 per ton in the stack with little changing hands at

Newlands, cont'd

that price. Beef feeders are rather slow contracting hay at this price as cattle men are asking 8-1/2 cents per pound for feeders.

The work at the station consisted of installing some new irrigation structures, hauling dirt to some low spots on the irrigation banks, cutting and storing ensilage. The highest yields of silage corn this year were about 8 tons per acre.

On September 11th 300 head of lambs arrived at the station for lamb feeding experiments. They averaged 68 pounds and cost 8-1/2 cents per pound.

The turkeys continue to make average gains. At 22 weeks of age the better fed groups averaged 15.4 pounds for the toms and 10.2 pounds for the hens.

E. W. Knight.

Prosser

Temperatures for the two-week period ending September 11 were as follows: maximum, 91°; minimum, 40°. The precipitation amounted to .34 of an inch.

Station activities included routine irrigation and cultivation work on the rotation series. Barley grown in Plot 2 of the Outlook Reclamation plots yielded at the rate of 44.6 bushels per acre. The barley has been harvested and removed from the plot. Other station activities included putting up the third cutting of alfalfa hay, harvesting Jonathan apples, and canning tomatoes at the station cannery.

Carl A. Larson

Scotts Bluff

The maximum temperature for the two-week period ending September 18 was 87°, the minimum, 41°. The daily wind movement averaged 6.3 miles per hour. There was .61 of an inch precipitation.

Station activities during the period included stacking the third cutting of hay from the rotation plots, cutting corn for ensilage and harvesting beans. The third cutting of alfalfa was of excellent quality when cut, but was damaged by several light rains before it could be stacked. Sugar beets and potatoes have made good growth. Early blight is more prevalent on the late potato crops this year than usual, consequently many fields are ripening and will soon be ready to dig. Tubers are becoming oversized in fields where the growth is still vigorous.

During this period water has been applied to sugar beets and alfalfa. The sugar beet crop has been irrigated six times during

the summer. At the present time it appears that the crop will not need further irrigation, however the 7th irrigation will be applied if necessary as irrigation water will be available until about October 1. Additional station activities included cutting ensilage and stacking the third crop of alfalfa.

A good crop of Great Northern beans is being harvested in the valley at the present time. The yields and quality of the beans are good. Little damage from bacterial blight has been experienced this year. The acreage harvested has been estimated at approximately 12,000 acres. Great Northern beans are being marketed at \$3 per cwt. A higher price for future sales is anticipated.

A group of 22 men from North Platte visited the station Friday September 10 and made a careful examination of experimental work being conducted here. These men were interested chiefly in the crop rotation work and other experimental work particularly with sugar beets and irrigation.

The 47th annual Scottsbluff County Fair was held at Mitchell from the 15 to 18 of September, inclusive.

Station visitors included Mr. Beyer Aune of Newell, S. D., and Dr. R. W. Goss, Pathologist of the University of Nebraska and Dr. H. O. Warner.

Lionel Harris.

Umatilla

The maximum temperature for the three-week period ending September 19 was 96°, the minimum, 34°. The average wind movement was 3.35 miles per hour; daily evaporation .182; precipitation, trace.

The project fair held during the week was the most successful during recent years. The station exhibit carried out the desirability of a balanced system of agriculture for irrigated land, emphasizing the basic feed crop needed for livestock on the farm and the value of the residue for the production of intensive cash crops. The float for the parade on Saturday was covered with mixed grasses and sweet-clover, pointing out with placards the importance of better pastures in the farming scheme of the project.

Measurement of data of the height, number of ears or heads and the number of stalks per plant on the corn and grain sorghum varieties was recorded preparatory to harvesting. The alfalfa test seed plats were cut and choked. The loss of flow heads before seed set was excessive, possibly due to the present of an unusual number of grasshoppers.

Labor was employed during the entire period harvesting and stacking the third crop of alfalfa which was unusually heavy. Other

Umatilla, cont'd

station activities included irrigating and weeding, altering and repairing fences, discing the sweetclover pasture in field F2, and repairing the concrete pipe line.

The boundaries of the newly acquired 280 acres of land south and west of the station were established and posted against grazing. The land was secured by Executive Order from the Interior Department for the purpose of controlling wind erosion. A strip of rye 500 feet wide seeded last fall, immediately west of the station, prevented further movement of drifting soil to the station and the 50 or 60 acres remaining will be seeded as soon as moisture conditions are favorable.

H. K. Dean.

The superintendent visited the Prosser, Washington, station where he met Mr. B. F. Dana and Dr. H. L. Blood of the Utah station to examine the vegetable work in progress. Dr. Blood subsequently spent one-half day at this station, and Mr. Dana remained throughout the week to make final notes and harvest the curly top selections.

H. K. Dean.

Yuma

The maximum temperature for the two-week period ending September 11 was 113°, minimum, 71°; precipitation, .36 of an inch.

The slightly cooler weather which prevailed early in the month changed to higher temperatures and humidity at the close of this period. The light rain recorded on the 11th was a local thunderstorm felt only in the northeast section of the project.

Lettuce plantings in the Yuma Valley made very little growth and much of the acreage may have to be replanted due to the hot weather.

Cotton picking and ginning continue with 2610 bales being listed as the season's total to date. For the same period in 1936, 2890 bales had been ginned.

Many of the subcontracts on the All-American Canal and Imperial Dam construction work were resumed after Labor Day. Much of the small construction work was discontinued during the summer months. To date the All-American Canal is listed as being about 96 percent completed.

Station work performed during this period included the harvesting of corn plats C-30-31 and D-27-28; hoeing and burning grass on ditch banks; roguing alfalfa plats of weeds and grasses; painting buildings; general irrigating and cultivating.

Dr. O. A. Pope of the Division of Cotton and Other Fiber Crops and Diseases inspected the cotton variety tests on the station Sept. 2. Mr. R. E. Beckett of the same Division from Sacaton, Arizona, was a station visitor Sept. 4 and 5.

E. G. Noble.

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Sept. 25, Oct. 2 and 9, 1937

No. 20

Belle Fourche

Month of September

The maximum temperature for September was 94° and the minimum, 25°. The mean temperature was 62° as compared with the 59° average. The total precipitation was 2.87 inches, most of which occurred on September 3, 5 and 9. There has ^{been} a total precipitation of 17.69 inches from January to October, this year, which is 4.03 inches above the average. No irrigation has been necessary during the month. The water was turned out of the canals on October 1st. At the present time there are some 50,000 acre-feet stored in the Belle Fourche Reservoir. The first killing frost occurred Sept. 24.

A farm sale was held on September 20 to dispose of surplus products. Potatoes sold for 85 cents per cwt.; apples, 1-1/2 cents per pound; ewes averaged \$10.90 per head; and buck lambs averaged \$14.65 per head.

The harvesting of the third cutting alfalfa was completed this month. Alfalfa hay is selling in the stack for \$8 per ton, and good quality barley is selling for \$1 per cwt.

On September 22 Mr. Leslie Bowen, Bureau of Agricultural Engineering, Scottsbluff, Nebraska, visited the station to examine the irrigation system.

The month was very favorable for the growth of sugar beets, corn, and potatoes.

Beyer Aune.

Huntley

The maximum temperature for the three-week period ending Oct. 9 was 93° with a minimum of 29°. There was 2.83 inches of precipitation.

A rainfall of .46 of an inch which occurred Sept. 24 was the heaviest single precipitation since early June. Tender garden crops were slightly damaged by the first autumn frost which occurred on September 24. There was practically no damage, however, to field crops as they were sufficiently matured, and in most cases beans and corn had already been harvested. Light showers during the forepart of the week ending October 2 were followed by freezing temperatures which destroyed potato vines and garden crops. Precipitation amounting to 2.19 inches which fell in the form of rain and snow on October 4 and 5 stopped all field work for the week and will seriously interfere with the harvest of beets and potatoes on the heavier soils of the project, although it was beneficial to dry lands and range. The rain was general in all sections of the Yellowstone Basin area.

Huntley, cont'd

The harvest of sugar beets in this section was started on September 28. Threshing of beans is well under way and the harvest of third crop alfalfa is nearly completed in most sections of the Valley. Stubble ground was irrigated and plowed. Machinery and buildings were repaired. The harvest of the third cutting alfalfa was completed during the week with an average of 1.43 tons per acre from all rotations.

Dr. M. Afanasiev of the Montana Experiment Station arrived to supervise the harvest in cooperative experiments and to make a final disease survey of plots in the rotations.

Dan Hansen

Newlands

During the two-week period ending October 2 the mean temperature was 57.8; the maximum, 76.5°; and the minimum, 31°. The average wind velocity was 2.33 miles per hour. There was no precipitation.

The first killing frost occurred on October 2, making 145 frost-free days. This is about 18 days longer than a 31-year average. At the station the third crop of hay has been cut and is in the shock. It requires more time to cure during these cool days; however, all of it should be hauled, chopped and under cover within the next three or four days. This cutting appears to be normal although some damage was done by caterpillars. Little hay is being sold and until the feed conditions in California are known a definite price cannot be established. The present price of feeder steers of 8-1/2 cents will have some effect on the price. Many stockmen are disinclined to pay such a price and then be required to feed high-priced hay. They maintain a buyers' strike on meat purchases would soon cause a definite drop in meat prices, resulting in a loss to holders of feeder steers and the packing companies with stored meat.

The work at the station has consisted of hauling manure, pouring a few concrete cattle troughs, hoeing weeds, irrigating, and cutting third crop hay.

The turkeys continue to make average gains. The pens receiving the mash containing the protein composed of more equal parts of animal and vegetable protein are making the best gains. The average weight of toms in these groups was 17 pounds and the hens, 11 pounds at 24 weeks of age.

The lambs recently received were placed on a feed of sweetclover hay. After a period of three weeks they were reweighed and will be placed on various grain rations. The first 3 weeks at the station were merely ones of preparation for the feeding experiment of a later date. They averaged about a 7-pound gain during the three-week period on the sweetclover hay.

Visitors during this period were Mr. C. E. Fleming, A. Young, F. B. Headley, and Director S. B. Doten of the Nevada State Agricultural Experiment Station.

E. W. Knight.

Prosser

Weather conditions for the four-week period ending October 9 were as follows: Temperatures: maximum, 94°, minimum, 32°. The precipitation amounted to .13 of an inch. A slight frost occurred October 7, but no crop damage was done at the station. The mean hourly wind velocity was 0.85 miles.

Station activities included harvesting the third cutting of alfalfa hay, crowning alfalfa plots for next year's beet crop in the rotations, and routine irrigation work. The pasturing of the sweetclover plots with sheep in the pasture rotations was completed October 8. Other station activities included threshing sweetclover seed and picking apples. The average yield of field dry hay on the third cutting was 2.16 tons per acre. The average yield for the three cuttings this year was 7.30 tons per acre of field dry hay.

Delicious and Roman Beauty apples have been picked. The yield of Delicious apples on the record trees of the irrigation plots averaged 884 packed boxes per acre.

Sugar beet harvest in the Sunnyside district began October 8. The new \$1,000,000 sugar beet factory at Toppenish is now in operation. This plant has a chopping capacity of 1,500 tons per day.

The Station cannery has completed operations for the season. Experiments on apple by-products will be conducted at the laboratory at Pullman, Washington.

Water applications at the Outlook Reclamation Project have been made on the sugar beets, barley stubble and sweetclover plots. A crop of clover and weeds was cut and removed from plots 1 and 6. There is a volunteer crop of barley growing on the harvested barley plot. Soil samples were taken in 6 different strawberry clover pastures between Outlook and Grandview.

The acre-feet of water stored in the reservoirs of the Yakima Valley Irrigation System was 492,417 on Sept. 25. Water deliveries will cease for this season on October 20.

Produce shipments from the Yakima Valley are much lower this year than last year. Seasonal totals, up to September 23, were 4,788 carloads this year as compared with 8,310 for the same period last year. Top prices for livestock, f.o.b. Yakima, are as follows: Prime steers \$8.50 Choice hogs, \$10.50, 1937 choice lambs \$6.50. U.S. No. 1 potatoes are \$14 per ton, sacks furnished, f.o.b. car, and hay in the stack ranges from \$8.25 to \$12 per ton.

Official visitors at the station were: H.K.Dean, Supt. of the Umatilla Field Station, Hermiston, Ore.; B.F.Dana, Pathologist, U. S. Dept. of Agri. Corvallis, Ore.; Dr. H.L.Blood, U.S.Dept. of Agri., Logan, Utah; and Vice-Dean E.V.Ellington, College of Agri. Pullman, Washington.

Carl A. Larson.

Scotts Bluff

The maximum temperature for the three-week period ending October 9 was 94°, with a minimum of 25° on the 24th. The daily wind movement averaged 6.5 miles per hour. There was .41 of an inch precipitation. The total precipitation for September was .67 of an inch as compared with 1.56 inches average for the past 27 years.

The first frost of the season occurred during the night of September 23 when the temperature dropped to 29 degrees. All of the tender plants, including cucurbits, potatoes, corn and tomatoes have been killed. The frost was desirable from the standpoint of the potato crop as the tubers were becoming oversized and the frost will result in better maturity and consequently less skinning and cracking at digging time. From the standpoint of the tomato crop, however, it was undesirable as tons of green and partly ripe fruit were killed. Despite this fact, yields of 15 tons per acre have been obtained in many fields. The last frost in the spring was recorded on May 13, leaving a frost-free period of 134 days which has been the average length for the past 27 years.

The irrigation season closed Tuesday, September 28. Storage in the Pathfinder Dam on that date amounted to 64,130 acre-feet. The maximum amount of water stored in the dam this season was 630,460 acre-feet on June 18. Early in the year unfavorable prospects for irrigation water prevailed; however, late rains and snows in the watershed increased the storage and prospects became brighter. Aided by several timely rains the farmers enjoyed a much better season than was earlier thought possible. Under the Government canals 1.70 acre-feet of water was delivered, as compared with a normal delivery of 2-1/2 to 3 acre-feet of water. No crops in the valley except alfalfa and some sweetclover pastures suffered for water during the year.

Doctors Werner and Goss have been at the station harvesting their breeding stock potatoes, and Dr. Tysdal has been harvesting alfalfa seed from a great many strains planted last spring for determination of wilt resistance. The potato harvest in the valley is nearing completion. Although the potatoes have been of good quality and are returning excellent yields, they have fallen short of the yields anticipated before harvesting operations began. Most yields ranged from 250 to 350 bushels per acre. The early blight disease which was more prevalent than usual, has not materially reduced yields of potatoes in the field, but will, no doubt, reduce the number of potatoes which may be taken from the cellar and marketed. The major portion of the North Platte Valley crop will be placed in storage this year in anticipation of a higher price. During the past week the price rose from 35 cents per cwt. to 60 cents for No. 1 table stock potatoes. There has been a great expansion in storage facilities in the valley this summer. Practically all of the space in commercial cellars has been rented by growers who do not have storage facilities of their own.

The potato harvest has been completed at the station. Approximately 4,000 bushels of potatoes have been placed in storage. The yield of certified seed totalled approximately 1,500 bushels. Certified seed for January delivery are bringing 90 cents per cwt. at this time.

Scotts Bluff, cont'd

The harvesting of sugar beets was commenced on October 5. Favorable climatic conditions have prevailed since that time, consequently the beets are making very good growth, increasing in both tonnage and sugar. Extensive digging has not been encouraged.

Other station activities included cutting corn, and irrigating beets and alfalfa. The installation of the furnace in the clerk's house was completed the 22nd of September.

Mr. Charles Hoff, auditor of the University of Nebraska, and Dr. H. O. Werner were station visitors.

The third cutting alfalfa averaged 1.31 tons per acre with the maximum yield of 1.82 tons per acre from rotation 65 and the minimum yield of .68 of a ton per acre from rotation 71.

Summary of Alfalfa Yields
1937

	Tons per acre		
	Maximum	Minimum	Average
First cutting	2.52	0.72	1.45
Second cutting	2.07	0.79	1.47
Third cutting	1.82	0.68	1.31

Lionel Harris.

Umatilla

During the week ending September 26 the maximum temperature was 80°, the minimum, 39°, the mean temperature, 59°. The average wind velocity was 2.5 miles per hour, evaporation .119 inches per day, and 0.04 inch of precipitation.

Mr. B. F. Dana spent the week at the station harvesting bean selections and making final notes on the squash selections. Entirely new symptoms, thought to be the result of curly-top, were found on beans, tomatoes, squash, soybeans and carrots. The symptoms observed consist of a complete morphological change in the flower parts in which the normal portions such as calyx, corolla, stamen and pistil made a leafy growth instead of developing normally into fruits, pods and seeds. In some instances on soybeans and beans the pods became folded leaves with two pronounced mid-ribs similar to pods and the embryo beans became small leaf-like structures. These symptoms developed since the August curly-top readings.

Soybean, grain sorghum and corn varieties were harvested.

Umatilla, cont'd

The average weights of turkeys on Sept. 22 follow:

April toms	at 22 weeks	16.8 pounds
April hens	at 22 weeks	11.2 pounds
May toms	at 18 weeks	11.3 pounds
May hens	at 18 weeks	8.3 pounds
June toms	at 14 weeks	7.7 pounds
June hens	at 14 weeks	5.9 pounds.

The maximum temperature for the week ending October 10 was 76°, the minimum 39°, and the mean temperature, 59°. The average wind velocity was 1.6 miles per hour and evaporation .095 of an inch per day. There was .17 of an inch precipitation.

Squash was harvested for the new succulent feeding project with the dairy herd. In excess of 60 tons of squash will be available and following its use, carrots and Jerusalem artichokes will be fed. The plan is to continue the group which received hay, and that which received hay and grain and supplement these feeds with 20 pounds per day per cow of the various succulent feeds.

By the use of State funds a carload of cement and 175 yards of pit run gravel were secured for the lining of approximately 4,000 feet of the distribution ditches on the station. This work will start the first of the week.

The alfalfa seed was threshed during the week. The yields were somewhat disappointing, probably due to late watering and to thick stands in some instances. The best yields were secured from alfalfa planted in hills and rows.

H. K. Dean.

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No. 22

Huntley

The maximum temperature was 67° and the minimum was -3° during the three-week period ending November 20. There was .15 inch of precipitation. A snowfall of 4 inches on November 16th followed by severe freezing stopped all field work; however, beets and other late crops were harvested before this freeze occurred.

The average yield of beets for the entire area is reported to be about 13 tons per acre, even though the crop in sections near Billings suffered severe hail and flood damage during the growing season.

Station work included the plowing of plots in the rotations and in miscellaneous fields, and the harvesting of sugar beets. The large machinery shed was moved to the new location.

The installation of a new set of 30 ground water test wells was completed. Elevations on these wells and other points, including several drains, were established by Professor O. W. Monson of the Montana State Station.

Station visitors were Professors H. E. Morris and O. W. Monson of the Montana Experiment Station.

Dan Hansen.

Newlands

The maximum temperature for the four-week period ending Nov. 13 was 80° and the minimum, 21°. The average wind velocity was 1.85 miles per hour. There was .03 of an inch of precipitation.

The cellar and machinery shed roofs and the pasture fence posts have been painted. Some plumbing repairs have been made and a general cleaning around the buildings and station entrance is in progress. Field work consisted of hauling manure and gypsum to the B and C Series, plowing, constructing levees, repairing bridges, hauling soil for depression areas and roads, and irrigating.

Mr. C. E. Fleming, of the State station, has reached the conclusion that sweetclover hay has little value in our sheep feeding experiments, as the sheep have been showing considerable scouring; consequently, a change has been made to alfalfa hay.

About 150 turkeys have been prepared for the Thanksgiving pool with the entire lot being tentatively graded as prime birds. The condition of the birds can be considered as fair this year but not particularly outstanding. About 40 birds remain to be killed for the pool opening December 2. Some of these birds cannot be marketed at the present time as they have developed pox and are bodily emaciated. Dr. W.B. Earl, State veterinarian, and Mr. L. Burge, Inspector for the State Department of Agriculture, inspected the birds for evidence of the pox.

A new regulating storage reservoir has just been completed by the Bureau of Reclamation with the assistance of C.C.C. boys in the Harmon district of the project. The reservoir has a capacity of 1,500 acre feet and will be used to store excess water for the Stillwater and the lower

Newlands, cont'd

Harmon ranches. Normally, a considerable portion of the water released from the Lahontan Reservoir would flow into the sloughs and flats of Carson Sink. A series of 21 test wells have been drilled on the site and analysis of the underground water is being undertaken in the station laboratory. Elevation measurements will continue on the wells for a period of 2 years. Storage in the Lahontan Reservoir is 128,634 acre feet.

The first storms of the year have been recorded with many of the passes in the Sierras being closed for the winter by snow. The Donner Summit and new Feather River roads probably will remain open throughout the year.

C. L. Moon.

The maximum temperature for the 2-week period ending November 27 was 65° and the minimum was 18°. The mean temperature was 43.1°. The mean wind velocity was 2.33 miles per hour and there was .04 of an inch of precipitation.

Farm prices on the project are as follows: butterfat 36 cents per lb.; eggs, 28 cents per dozen; hogs, 8 cents; lambs, 9-1/2 cents; and beef, 8 cents; hay, \$8 per ton. The final price for turkeys marketed on the Thanksgiving pool has not been determined. Two receiving pools will be conducted prior to Christmas, one on Dec. 4 and the other about Dec. 16. The remaining four dozen turkeys from the experimental flocks at the station will be marketed on the latter date. The epidemic of chicken pox has run its course.

Work at the station has consisted of hauling dirt to repair roads and filling in a few low spots in the fields. In addition, certain bridges and irrigation structures are being repaired.

Station visitors during this period were Director Doten, F. B. Headley, Mr. C. E. Fleming, A. Young, and Dr. L. R. Vawter of the State station staff.

E. W. Knight.

Prosser

The temperatures for the 3-week period ending Nov. 13 were as follows: Maximum, 77°; minimum, 27°. The precipitation amounted to 1.25 inches.

Station activities included the harvesting of potatoes and sugar beets. The average yield of potatoes from all plots was 5.02 tons per acre. The maximum yield of 11.6 tons per acre was obtained from Rotation 50, where the potatoes were grown on alfalfa sod. The sugar beet plot in the Outlook Reclamation project was harvested Nov. 3 with the yield amounting to 10.6 tons per acre--based on the area planted. The sugar beets in the rotations produced an average yield of 18.2 tons per acre. The maximum yield of 25 tons per acre was produced on rotation 29 and the minimum yield of 14.6 tons per acre was produced on rotation 8--the continuous beet plot.

The sugar beet growing area contributing to the Toppenish factory of the Utah-Idaho Sugar Company produced 64,600 tons of beets this year. The first payment will amount to \$5 per ton.

The harvesting of corn on the rotation plots began November 12.

A horticulture class from the State College of Washington, Pullman, accompanied by Dr. E. L. Overholser, visited the station Nov. 13. Doctors Dietz and Jones, from the Department of Plant Pathology of the State College at Pullman, visited the station Nov. 1 to make observations of disease symptoms on alfalfa.

Carl A. Larson

Scotts Bluff

The maximum temperature for the 3-week period ending Nov. 20 was 71° and the minimum was -12°. The daily wind movement averaged 7.5 miles per hour. There was .35 of an inch of precipitation.

The lamb feeding experiments were started on Sept. 8 when the lambs were weighed individually for two consecutive days, and divided into 10 lots of 30 lambs each. They will be fed the following rations:

- Lot 1 - Shelled corn and alfalfa
- Lot 2 - Barley, cotton seed cake, bone meal, ground corn stover.
- Lot 3 - Barley, cotton seed cake, bone meal, ground corn fodder.
- Lot 4 - Barley, corn, dried pulp, soy bean meal, alfalfa & beet tops
- Lot 5 - Barley, corn, dried pulp, cotton seed meal, alfalfa and beet tops.
- Lot 6 - Barley, corn, dried pulp, alfalfa and beet tops
- Lot 7 - Barley, corn, dried pulp, alfalfa and beet tops (self fed).
- Lot 8 - Cull beans, dried pulp, ground alfalfa and beet tops
- Lot 9 - Cull beans, barley
- Lot 10- Dried pulp, wet pulp, barley, alfalfa and beet tops, beet molasses.

On Wednesday, Nov. 10, an irrigation school was held at Bridgeport, Nebr., for the purpose of acquainting dry-land farmers in that section with the problems which they will likely encounter in their efforts to develop pump irrigation systems. Farmers around Bridgeport who do not have access to river or storage water for irrigation purposes are interested in the possibilities of supplying water to their land by pumping it from wells. The problems involved in digging wells, pumping water, and establishing an irrigation system were discussed by Mr. Ivan D. Wood, Extension Engineer of the University of Nebraska. The maintenance of soil fertility under irrigation farming was discussed by Lionel Harris.

The painting of the buildings on the station ground has been completed. Other station activities included husking corn, stacking the 4th crop of alfalfa hay, hauling pulp, beet tops, repairing sheep pens and grinding corn fodder. Four horses and 12 dairy heifers have been brought to the station from the University pasture where they grazed most of the summer. Owing to unusually favorable fall weather, it has been possible to leave the animals on pasture longer than usual. During the week ending Nov. 20, field activities were limited by snow and cold weather. A carload of corn was received and unloaded. The corn is to be used in the various livestock feeding tests; however, most of it will be used in various hog feeding rations.

Checks for the first installment on the 1937 sugar beet crop were mailed to farmers on Nov. 13 by the Great Western Sugar Company. The Colorado-Nebraska installment averaged slightly above \$4.60 per ton. This installment per ton is lower than the first installment last year because of lower sugar content of the beets and the recent imposition of a tax of 53-1/2 cents per bag of refined sugar. The average yield per acre in the Nebraska district has been estimated at 15.18 tons per acre, which is the highest in 12 years and the second highest in the history of the State. In 1925 an average yield of 16.48 tons was obtained. The sugar content of the crop this year will be approximately 15.75 percent as compared with an all-time average for the district of 16.25 percent, and with last year's average of 16.39 percent.

Scotts Bluff-cont'd

A car of the station table stock potatoes has been loaded and sold for 60 cents per cwt. Certified seed potatoes are bringing from \$1 to \$1.10 per cwt. The efforts of the Federal Government to increase the price of potatoes have not been strikingly successful up to this time; however, it is believed that its program has helped to maintain the price at the present level.

Mr. John R. Jirdon, Morrill, Nebraska, a prominent livestock feeder in the North Platte Valley, has opened a new feed mixing plant at Gering. The aim of the mill is to supply feeders with mixed feeds to supplement the varied products grown on valley farms. These feeds and those available on farms will be combined to make complete rations.

Station visitors included Professor M. A. Alexander of the Nebraska College of Agriculture and Mr. M. L. Baker of the North Platte Substation; Professor H. P. Davis, head of the Dairy Department; Mr. George Trimberger; and Professor H. J. Gramlich of the Animal Husbandry Department of the University of Nebraska.

Lionel Harris.

Umatilla

During the two-week period ending October 31 the maximum temperature was 78° and the minimum was 30°. The mean wind velocity was 1.9 miles per hour, and the evaporation was .066 of an inch per day. Precipitation amounting to .135 of an inch fell. The minimum temperature of 30°, which occurred the 6th, froze the leaves on squash and watermelons but was not severe enough to kill tomatoes and potatoes.

The lining of ditches with concrete was continued during this period with 2,600 feet being completed to date.

H. K. Dean.

Yuma

The maximum temperature for the two-week period ending Nov. 13th was 92°, the minimum was 39°; the average wind velocity was 0.9 miles per hour. There was no precipitation. Cooler weather prevailed during the first week in November with rainstorms threatening from the west; but the harvesting of summer crops and the planting of winter grains, alfalfa and truck crops continued without interruption.

The cotton crop is about two-thirds picked with 8,000 bales ginned to date. The local supply of cotton pickers seems adequate although adjacent cotton growing sections report a serious shortage of this type of labor.

The cooperative work with the Bureau of Entomology and Plant Quarantine on the study of cotton insect pests was terminated for the season on Nov. 13. This work was under the immediate supervision of Mr. T. P. Cassidy, Tucson, Arizona. Messrs. D. W. Clancy and John Breazeale were quartered at the station for the period June 15 to Nov. 13. The scope of work covered in 1937 included cage demonstrations to identify the damage to cotton of certain insects and dusting treatments on cotton plats, both on the station and on the Schutz farm near Somerton, Arizona. Sulphur and Paris green dustings at 5 day intervals from late June to early September improved yields on the Schutz farm about a bale to the acre. On the station for 6 varieties of cotton the differences in yields were much less. The particular insects studied were the Tarnished Plant Bug, Lygus sp.

Yuma, cont'd

and the two Stink Bugs, Chlorochroa sayi. and Euschistus impictiventris. Equipment used for this work has been stored at the station until the investigations are resumed next summer.

The grass nursery plats on B-1 and 2 were harvested. The maximum yield for Dallis grass was 235 pounds per acre from 24-inch spacing of the rows, fall planted. The best plat of Bahia grass produced at the rate of 260 pounds per acre from 36-inch row widths, spring planted.

The U.S. Geological Survey report for October shows the discharge of the Colorado River at Grand Canyon to be 495,000 acre feet. The flow of the river at Parker--below Boulder Dam-- was 360,000 acre feet. The estimated storage behind Boulder Dam was 15,150,000 acre ft.

Station work has included the picking and ginning of cotton, harvesting of grain sorghums, threshing grass nursery varieties, seeding green manure crops, repairing fences, general irrigating and cultivating.

E. G. Noble

M I S C E L L A N E O U S

Mr. Scofield left Washington Friday, November 26, for a field trip to South Texas.

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Vol. XXXIX

Nov. 27, Dec. 4 & 11, 1937

No. 23

Belle FourcheNovember

The maximum temperature for the month was 69° and the minimum was -9°, with a mean temperature of 31° which is 2° below normal. The first half of the month was relatively warm, but cool weather prevailed thereafter. The total precipitation for the month was only .24 of an inch. The total precipitation for the year to December 1st has been 18.12 inches, which is 2.76 inches above normal. Only .50 of an inch of precipitation has been recorded since Sept. 10, with the result that the ground has been very dry and field work was possible until the end of the month. All fall plowing has been completed and, also, some land leveled.

The harvesting of sugar beets in the district was completed the first part of the month and the first payment of \$5 per ton was made on Nov. 15. The yield is somewhat over 11 tons per acre, and the mean percent sugar is 15.46.

Water for the stock dams was turned into the canals on Nov. 20 and continued until the end of the month.

Alfalfa hay is selling in the stack for \$8 per ton; barley, \$1 per cwt.; and corn, shipped in, \$1.15 per cwt. in carload lots.

Beyer Aune.

Huntley

The maximum temperature during the two-week period ending Dec. 4 was 55° and the minimum, 2°. There was .24 of an inch precipitation in the form of snow.

An initial payment of \$5 per ton was made by the local sugar company on sugar beets delivered during the season. Additional payments, the amounts depending upon the selling price of sugar, will be made during the year as the sugar is marketed. It is expected that the total price, including benefit payments under the A.A.A. will amount to approximately \$8 per ton.

Station work included repairs to buildings and machinery, and the usual routine work of caring for livestock.

The Superintendent and Mr. A. E. Seamans made a trip to Bozeman on December 2 to confer with officials of the Montana State Station regarding cooperative work at the Huntley station.

Dan Hansen.

Newlands

The maximum temperature for the two-week period ending Dec. 11 was 71° and the minimum, 11°. The mean temperature was 35.7°. The mean wind velocity was 1.93 miles per hour. There was .90 of an inch precipitation.

The weather was ideal during most of this period. At night the temperatures dropped to around 14°, and the day temperatures rose to around 50°. Bright, sunny days removed all frost from the ground, thus

Newlands, cont'd

allowing field work to continue. On Dec. 9 a warm rain, accompanied by occasional high winds, started to fall and continued intermittently for three days. This storm period, which was general throughout the West Coast, resulted in great flood damage to many towns in the Sacramento Valley, Calif. At Reno the Truckee River overflowed its banks, taking out bridges and severely injuring property bordering the stream.

During this period soil was hauled for road and plot fills. Also, manuring a portion of those areas requiring such treatments was continued.

Feeder cattle are arriving on the project. The average price has been about 7-1/2 cents per pound at Fallon for the better types of feeders. The price for lambs remains at \$9.60 per cwt. on the San Francisco markets. Eggs are 29 cents per dozen; butterfat, 36 cents; beef, 8 cents; and hogs, 8 cents per pound.

It is proposed to complete the turkey and sheep experiments during the coming week. There remain some 40 turkeys from the Thanksgiving pool, and the entire lot of 300 lambs to be sold.

E. W. Knight.

Prosser

The temperatures for the four-week period ending Dec. 11 were as follows: maximum 62°, minimum, 19°. The rainfall amounted to 2.09 inches. Precipitation of more than .01 of an inch fell on nine of the first fourteen days of this period. On Dec. 10th .17 of an inch of snow fell, followed by rain.

Station activities included harvesting and shelling corn. Three plots to be planted to beets next year were fertilized with manure and 15 plots were plowed. Final soil samples for the season were taken on the six Outlook Reclamation Plots.

The top price of alfalfa hay in the stack is \$12 per ton, and U.S. No. 1 potatoes are from \$11 to \$13 per ton, sacks furnished.

The Washington State Horticultural Association held its annual meeting at Wenatchee, Washington, on December 6, 7 and 8. The orchard irrigation data compiled from experimental work in the station apple orchard were presented at the meeting.

Visitors at the station were as follows: Mr. Jack Rodner, Project Manager, Soil Conservation Service, Ellensburg, Wash.; George B. Gosline, Asst. Agri. Engineer, Watsonville, Calif.; Dr. R. S. Lehman and Mr. K.E. Gibson, Asst. Entomologists, Wireworm Laboratory, Walla Walla, Wash.; Mr. F. H. Shirk, Asst. Entomologist, Parma, Idaho.

Carl A. Larson.

Scotts Bluff

The maximum temperature for the three-week period ending Dec. 11 was 58°, the minimum, -6°. The mean daily wind movement was 7.1 miles per hour. There was .12 of an inch precipitation.

Carrots, parsnips and onions from the winter planting test have been dug and graded. Additional station activities included plowing, husking corn, piling beet tops, hauling feed, and the routine work of caring for the livestock. The north section of the farm has been fenced and the station horses are now grazing on that area. About 12 tons of hay have been ground for feeding experiments with dairy cows. The method of grinding alfalfa hay and corn fodder has become a well established practice by a number of feeders in the valley, and is apparently increasing in popularity.

Scotts Bluff, cont'd

An association of commercial potato growers has been organized in the North Platte Valley for the purpose of effecting better market practices, and to advertise more widely Triumph potatoes produced in Western Nebraska. The Valley has been divided into six districts with a director for each district who represents the interests of the growers in his particular district at an association conference table. The new association has no connection with the potato control board other than to see that the interests of commercial potato growers of the valley are protected.

Plans are now under way for western Nebraska to market a quality pack of table stock potatoes this season under the auspices of the Nebr. Potato Improvement Ass'n. The seal of the brand bears a reproduction of chimney rock near Bayard, Nebr., and "Pinnacle" has been adopted as the name of the brand for these select table stock potatoes. This brand will include only 100% U. S. No. 1 potatoes of an A grade, having an excellent color and uniform size. Under present arrangements, potatoes to be marketed under the Pinnacle brand will undergo preliminary inspection. The Nebr. Certified Seed Growers Association is cooperating in this phase of the work.

The yields of potatoes from the irrigated rotations at the station have been tabulated. They have ranged from a minimum of 105.3 bushels in rotation 20 to a maximum of 406.7 bushels from rotation 41. The mean yield from the rotations in field K was 266 bushels, and from those in field E, 217.8 bushels.

The 45th Annual Meeting of the Nebraska State Irrigation Ass'n was held Dec. 9 and 10 at North Platte, Nebr. The problems of irrigation agriculture, the building of irrigation structures, and the control of irrigation water represent the major features of the meeting that were discussed in detail by various authorities. "The Value of a Ton of Manure" was the title of an informal talk made by Lionel Harris. C. T. Young of Cozad, Nebr., was elected President of the Nebraska Irrigation Association at the close of the convention. Mr. Young succeeds T. W. Parry of Mitchell, Nebraska.

The mean yield of sugar beets from the rotation plots in field K for 1937 was 16.54 tons per acre, and from the rotations in field E 14.07 tons per acre. The yields ranged in field K from 6.85 tons for rotation 2 to 25.22 tons per acre for the new phosphate rotation No. 41. There is an adequate supply of good quality sugar beet tops available for feed, which are being fed liberally to lambs and cattle throughout the Valley. A method of mixing concentrate feeds with ground alfalfa and self-feeding the complete ration has been adopted by some cattle and lamb feeders.

Since the lamb test began three weeks ago, the quantity fed per lamb has been gradually increased, and at this time they are receiving four-fifths of a pound per day. All the lambs are taking the various concentrate feeds satisfactorily.

Hay is selling for from \$9 to \$10 per ton. Table stock potatoes are selling at 60 cents per cwt.--85% grade. Certified potatoes are bringing \$1 per cwt.

Despite a continuous home-building program in Scotts Bluff and adjoining valley towns, there is a noticeable shortage of rent houses as indicated by a recent survey made by a local newspaper.

Lionel Harris.

Yuma

The maximum temperature for the two-week period ending December 4th was 84°; the minimum, 37°; mean wind movement 1.2 miles per hour; precipitation, .14 of an inch.

Despite a light rain occurring December 1, cotton picking, ginning, putting up alfalfa hay and harvesting the early lettuce crop have continued. The first killing frost is already three weeks later than normal, which will delay the final picking in the cotton fields. All cotton tests on the station have been picked over for the first time, and the results show larger yields than those obtained last year. The latest gin report for the Yuma Project shows 8,200 bales.

Station work has included the picking and ginning of cotton; planting alfalfa and winter grains on the rotations; leveling lands; hauling grain sorghum stalks; general irrigating and weeding.

The U. S. Geological Survey report on the Colorado River for November shows the discharge at Grand Canyon to be 396,000 acre feet. The flow at Parker, below the dam, was 388,000 acre feet, leaving an estimated storage behind Boulder Dam of 15,075,000 acre feet. The mean flow of the river at Parker for the month was 6,532 c.f.s.

Station visitors were Dr. R. S. Hawkins, E. H. Fressly and G. H. Seemans of the University of Arizona; Dr. R. W. Harned, T. P. Cassidy, T. C. Barber and C. J. King of the U. S. Department of Agriculture; and J. G. Blackledge, County Agent of Yuma County.

E. G. Noble

M I S C E L L A N E O U S

Mr. Scofield returned to Washington Friday, December 10, from a three-week field trip.

W E E K L Y R E P O R T S

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Vol XXXIX

December 18 & 25, 1937, and Jan. 1, 1938

No. 24

Belle Fourche

December

The maximum temperature for December was 51°, the minimum -15°. The mean temperature was 32°, or 1° above normal. A cold wave occurred between Dec. 6 and 10 with minimum temperatures ranging from 0 to -15°. The last half of the month the temperatures were above normal. The total precipitation for the month was .48 of an inch as compared with the .44 of an inch mean. The total annual precipitation for 1937 was 18.59 inches compared with 15.80 inches mean, which is 2.79 inches above normal.

The work consisted of hauling feed and the care of the livestock, general repairs to machinery and equipment, hauling coal and putting up ice. The last week of the month the C.C.C. commenced to haul gravel for the roads in the farmstead. Some 400 yards are to be hauled, and when completed will gravel all the roads and also resurface some that had been previously graveled.

Alfalfa hay is selling for \$8 per ton in the stack; barley, \$1 per cwt.; and corn shipped in carload lots, \$1.15 per cwt.

Beyer Aune.

Huntley

The maximum temperature for the two week period ending December 25 was 46° and the minimum -20°. There was .38 of an inch precipitation, which fell in the form of snow, and was followed by severe freezing. The minimum temperature of -20° is the lowest recorded so far this season.

Weather conditions have been favorable for feeding operations in the area and the stock in feed lots are making good gains. Recent market declines for fat stock, however, will result in little or no profit from feeding operations in the case of lambs that are now finished for the market. The number of lambs on feed is much smaller than in former seasons, and the total in the entire upper Yellowstone Valley area is less than 50,000 head.

Farm prices for feed remain at \$8 per ton for alfalfa hay, and \$1.25 per cwt. for feed grains. Great Northern beans are quoted at \$2.20 per cwt.

Station work included only the routine work of caring for livestock.

Dan Hansen.

Newlands

During the two-week period ending Dec. 25 the maximum temperature was 51° and the minimum 15°. The mean wind velocity was 2.34 miles per hour. There was .25 of an inch precipitation.

The Fallon area has had little precipitation during this period. Following a severe storm which occurred early in December, a period of fair weather covered most of the centralwest coast. On Dec. 22 a storm moved in from the northwest, to be followed two days later by one from the west. This storm brought some two feet of snow on the higher Sierras, but just a fraction of an inch fell at Fallon.

Newlands, cont'd

The prices of farm products have changed slightly. The livestock market became greatly unsettled this month, with little demand for beef or lambs. This was probably due to a lessened demand for these meat products during the holiday season and, also, the high prices asked. Packers are offering 8 cents per pound for beef, 7-1/2 cents for lambs, and 8-1/2 cents for pork. Eggs are 31 cents per dozen, and butterfat 36 cents per pound. The Christmas turkey market was slightly below the Thanksgiving market. The exact net for pool-delivered turkeys has not been determined, but it will probably be around 20 cents.

The fourth year of the alfalfa variety tests was completed this season. The Common variety returned the highest mean yield which was 9,147 pounds per acre, and the lowest yield was from the Cossack variety and amounted to 8,120 pounds.

E. W. Knight.

Scotts Bluff

The maximum temperature for the three-week period ending January 1 was 65° and the minimum was -9°. The mean wind movement was 7.35 miles per hour. There was .49 of an inch precipitation.

The Farm Bureau organization of Scottsbluff County observed its twentieth anniversary at a meeting in the central auditorium at Gering, Nebr., Friday, December 17. Various speakers outlined the progress of agriculture in the North Platte Valley and of the Farm Bureau organization. All but one of the county agricultural agents for the last twenty years took part in the program.

According to a recent dairy report issued by the Nebraska Agricultural College, the Scotts Bluff station was given top honors in November for having the highest butterfat producing cow in the dairy herd improvement associations in Nebraska. A registered holstein at the station, cow no. 174, produced 84.1 pounds of fat.

Results of pasturing pigs on third year alfalfa crops and corn plots in rotation 65 have been completed. During the first pasturing period on alfalfa, which lasted from May 6 to July 30, six fall-farrowed shotes were pastured for 41 days, and three shotes were pastured for 45 days. The hogs gained a total of 335 pounds, and consumed 902 pounds of corn, which amounts to 269 pounds of corn per 100 pound gain. During the second period, Aug. 5 to Oct. 4, eight spring-farrowed shotes were used in the pasturing test. These pigs which were on pasture for a period of 60 days, gained 250 pounds and consumed 518 pounds of corn, or 207 pounds per 100 pound gain. On October 5, the eight pigs used in the alfalfa pasturing test were turned on the corn plot in rotation 65 for a period of 30 days. While on corn the pigs gained 240 pounds and consumed 910 pounds of corn.

A considerable quantity of potatoes will be fed to livestock in this section, under the Federal potato diversion program, according to S. K. Warrick, who is in charge of the work here. The diversion program started Monday, Dec. 20, and by the end of the week farmers had signed up 91,195 bushels of potatoes in Scottsbluff County, 45,430 bushels in Sioux County, and 4,300 bushels in Kimball County.

Station activities were chiefly of a routine nature, including husking corn, hauling beet tops, building self-feeders for hog feeding tests, and hauling feed and caring for livestock.

At the end of the first month of the feeding experiment with lambs, the average gain per head in the 10 lots was 9.09 pounds. The 300 lambs on test made an average daily gain of .30 of a pound per lamb. The

Scotts Bluff, cont'd

average daily gains ranged from .15 of a pound (lot 8, self-fed equal parts of dried pulp and cull beans with ground alfalfa) to .42 of a pound (lot 5, fed dried pulp, barley corn, cottonseed cake, alfalfa and beet tops). The concentrates during the first month consisted of 40% of the ration and the ground alfalfa approximately 60%. The second highest gain of .39 of a pound per day per lamb was recorded for lot 4, which is identical to lot 5, except that soybean meal was substituted for cottonseed cake. We attribute the low gain made by the lambs in lot 8 during the first month to the fact that they did not take to the feed readily; however, they have since improved in that respect.

The yields of corn from the rotation plots in field K have been tabulated. The yields ranged from 22 bushels per acre in rotation 16 to 65.7 bushels per acre in rotation 62. The mean yield from the 5 plots was 42.7 bushels per acre.

Lionel Harris

Umatilla

November

The weather for the month of November was unusually mild. The first killing frost occurred on the 29th, making a frost-free period for the season of 243 days as compared with the 196 day mean for the new station site. The precipitation for the month amounted to 1.56 inches, which was .46 of an inch above normal.

The major work performed during November was the concrete lining of 5,230 feet of irrigation ditches, chiefly those supplying fields B4, B6, E2 and F1. By some regrading in field E1 and around the office, it has been possible to eliminate 550 feet of ditch bordering the horse corral and machine shed. Also, these improvements made it possible to eliminate 300 feet of ditch along the lower end of B4.

The heavy November precipitation, along with the 1.21 inches from Dec. 1 to Dec. 20, has been very useful in bringing up the rye in the blow area. The Stanfield C.C.C. camp is still of the opinion that they can get around some time this winter with their heavy equipment to move the accumulation from the rotation plats.

The yields from the soybean variety tests were better than those from our previous trials. The average yield of the 17 varieties was 1,395 pounds per acre. The highest yield of 2,071 pounds was from the Mukden variety, and the lowest of 357 pounds from Wisconsin Black. In every instance the latest maturing varieties were the heaviest yielders. All the varieties had matured by Sept. 30 which was well ahead of frost.

The corn varieties produced better and the sorghums poorer than a year ago. The corn varieties averaged 2,351 and the sorghum varieties 1,699 pounds of grain per acre. The highest yielding corn was a hybrid, Reids 13KxR26W, with 3,009 pounds; and the lowest was Indiana 495C with 1,382 pounds. The best sorghum, which was Feterita, yielded 1,972 pounds and the poorest, Hegari, 1,277 pounds.

The carrots did not yield as high as previously, averaging only 11 tons per acre; with Chantency, the highest, yielding 13 tons, and Long White Belgian, the poorest, 9.5 tons. The above figures are the average for the three planting dates: March 29, April 12 and April 26. The best planting date, as indicated by yield, was Apr. 12 with 12.2 tons, and the poorest April 26 with 9.2 tons. The carrots which were pitted for use as a succulent feed for the cows rotted, probably due to insufficient ventilation. The pure line squash

Umatilla, cont'd

strains averaged 22.8 tons per acre.

The turkey program is being materially changed. There have been selected from the 1937 birds twenty-four early maturing hens looking toward the development of an early maturing, blocky type of bird. For the purpose of comparison 24 backward hens were kept. Also, late and early maturing toms will be used. Records will be kept on weights, production per hen by trap nesting and fertility and hatchability. The pedigreed lines will be carried to maturity next year and further selections made. The State station officials are showing real interest in this project.

Through correspondence with Mr. Westover, arrangements have been made for an extensive rod-row nursery and some plot plantings of wilt resistant alfalfas in 1938.

During the week of Dec. 19 the maximum temperature was 51°, the minimum 24°, and the mean, 33°. The mean wind velocity was 2.5 miles per hour. Precipitation amounted to .09 of an inch. Field work consisted entirely of regrading in field B4.

H. K. Dean

Yuma

The maximum temperature for the two-week period ending December 25 was 75° and the minimum 29°. The precipitation totalled .14 of an inch. The mean wind velocity was 2.2 miles per hour.

The first killing frost of the fall and winter season occurred on the morning of December 22, which is approximately a month later than normal. The cooler weather is beneficial to the maturing lettuce crop as the previous warmer weather had caused some "bolting."

Cotton picking and ginning continued, with the gins of the project reporting a total to date of 10,000 bales. The late frost will permit a larger ton crop of cotton to be harvested and yields in general will exceed earlier expectations.

Lettuce is moving to markets at the rate of about 40 carloads per day, and grapefruit at about 2 carloads per day. The new grapefruit juice canning plant at Yuma started operations on Dec. 20. The plant is to handle approximately 100,000 cases, about half of which have already been booked on orders. Prices for the packed fresh fruit have been weak and the market dull.

The fall and winter pasture season for livestock on the project is in full swing. Beef cattle totalling 14,000 head are distributed over the alfalfa, grain sorghum stubble and fall-planted barley pastures. This number of beef cattle is approximately a 40% increase over last season. Sheep totalling 28,000 head are also on pasture on project farms. Most of these are ewes to lamb during the winter.

The pecan crop is virtually completed with production estimated at about 400,000 pounds. Retail prices quoted by the growers are 25 to 35 cents for Mahan, Success, Schley and Burkett varieties; and 20 cents per pound for Kincaids and 15 cents for Halberts.

Work on the station has included the picking and ginning of cotton, planting alfalfa and winter grains, planting alfalfa wilt resistant nurseries, repairing test wells, general irrigating and cultivating.

E. G. Noble

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Mr. C. S. Scofield left Washington December 30 for Riverside, Calif., where he will be engaged in the activities of the Rubidoux Laboratory for the next few months.

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4. In the fourth part, we shall consider the case of a system of particles in a magnetic field.

5. The fifth part is devoted to the case of a system of particles in a magnetic field.

6. In the sixth part, we shall consider the case of a system of particles in a magnetic field.

7. The seventh part is devoted to the case of a system of particles in a magnetic field.

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